THE FARMERS' CABINET,

AND

AMERICAN HERD-BOOK,

DEVOTED TO

AGRICULTURE, HORTICULTURE, AND RURAL AND DOMESTIC AFFAIRS.

"The Productions of the Earth will always be in proportion to the culture bestowed upon it."

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For the Farmers' Cabinet.

Fine Wool.

The present tariff law will render necessary a greater regard to rearing a race of sheep that shall yield a larger quantity, as well as a superior quality of fine wool, especially for combing purposes. This end might be accomplished without in the least reducing the quantity of mutton, by crossing the pure Leicester, or Dishley ewe, with the Merino buck; and in this cross, it appears to me that we should unite all that is desirable, without incurring any of the difficulties and objections that have arisen in the attempt to obtain fine wool by a mixture of long and short—as between the Southdown and Leicester. And my opinion has been materially strengthened, by a conversation on the subject with one of the most influential of our wool merchants, whom I lately met on his return from a tour of observation through the Western territory, with the view of ascertaining what was the quantity of fine wool on hand, on the eve of the expected passage of the tariff bill. He fully agreed with me, that the cross of the *long* wool on the *short*, or *vice versa*, had not been found to answer expectation, the produce being neither long nor short, and by no means suitable, either for combing or clothing wool. This gentleman is also a breeder of sheep to a considerable extent, and was very sensibly interested by my observing, that the plan for improving any breed of animals, was to begin with *dam the best*, and which, for the purpose here contemplated, would prove of the highest importance, as the object should also be, to improve the size of the sheep and the quality of the meat; for it is evident that mutton is beginning to command regard in our markets, and will become a staple article in the consumption of flesh meats. With this view it was, that I advocated the cross of the largest and best bred Leicester ewes with the Merino buck; remarking, that the progeny would be large and well formed, owing to the large capacity of the dam, as well as the power of supporting its young after parturition; and prove a security from danger at that particular time, when accidents are continually occurring from a reversal of this rule, namely: that of crossing a small female with a large male; in all which he fully concurred, and mentioned, as corroborative of the fact, instances that had lately come to his knowledge, where the produce between a large heavy horse and half-bred mares, had turned out the most ill-formed objects; the want of capacity in the dam, compelling the fetus to extend itself in the length of the legs, &c., so that when it came into the world, which it always did at the imminent peril of the life of its parent, and often with its sacrifice, it was found to be any thing but what had been expected from such an union. And this observation reminded me of a stable of large Flemish mares, which I had known kept on an extensive estate in France, mainly for the purpose of rearing carriage horses of superlative strength and beauty, by a cross with the stoutest thorough bred horse that could be obtained; by which means the finest animals of 16 or 17 hands in height, had been obtained; perfect models for the painter, and commanding almost any price in the market.

In No. 2, Vol. VII. of the Cabinet, I observe the portrait of the Cheviot ewe, from "Low's Illustrations." Having myself formerly been much concerned with this particular breed of sheep, I am free to confess that the likeness is not good; the head, although not fine and small in the Cheviot, is not so large as is there depicted, neither are the legs and feet naturally so large as those of a calf, as they there appear; but this is not the fault of the engraver; the animal is faithfully done from Low's work, but the drawings, in many instances, are faulty in this particular, although most beautifully engraved and ornamented. But I would say of this variety of sheep, they are valuable, only in peculiar situations, where finer breeds

could not subsist. Their fleece is coarse and inferior, small, light in weight and value; while their meat is not first rate; but on their own native hills, and on other mountainous districts, they have well nigh supplanted the original Heath breed: being as hardy as they, larger in the carcass, and coming to maturity earlier: a desirable sheep for Scotland, but by no means so for America. We owe, however, thanks to the Cabinet, for bringing us acquainted with a race of sheep, which are at present commanding very great attention in many parts of Europe, but of which, little before had been known in this country.

But the cross which I advocate, namely, the pure Merino on the thorough bred Leicester, or Bakewell, or Dishley, would form a breed of sheep worthy our care and attention; and I expect to see them introduced, not only into our sheep-breeding districts, but also upon our farms, as part of our general stock; where they would be found a valuable variety, and be the means of conducing much to our convenience and profit, in the regular supply of our tables with an agreeable and particularly wholesome food, besides furnishing a lamb and fleece every year in payment of their keep—the manure of a well regulated flock defraying, most amply, all expense of care and attendance. I am at present turning down a clover-lay of 16 acres, for wheat, the land being full of natural grass; now, I am confident that a flock of 50 such sheep, could have been kept upon this herbage to far greater profit to the wheat, than it will obtain from the green crop turned in; I greatly prefer passing such crops through the bowels of animals, to burying them; and it will not readily be believed, how far the *pickings* of our fields would go to the support of such a flock through the year. An objection to the keeping of sheep is urged, in the fear that they would be worried by dogs; but if a bell be attached to the neck of every fifth sheep in the flock, there would be no danger of that kind. Their night-fold, if properly covered from time to time, with dry muck or fresh mould, would be found to yield a large quantity of the very best compost, for dressing young clover in the spring, of far more value than the cost of attendance; and this system is carried out on a large scale by Major Reybold, of Delaware, at whose farm, on my last visit, I saw a mine of wealth in the cleaning of his sheep-fold, all ready for carrying abroad. If persons would attend to their flocks of sheep, and consider them as part of their farm stock; not expecting them to subsist without a regular supply of food and care, any more than they do their horses, cows and hogs, I have yet to learn why they could not be made to pay as well—nay, better than they. And I would ask of my brother farmers, if there be any reason why we should not, each of us, keep a flock of fatting sheep for the regular supply of our tables with fresh mutton! I am satisfied, the change which it would make in our food, would be conducive to health and vigor of constitution, and be found as cheap as any other; particularly if we were to adopt the European plan, of making soup of a large portion of the carcass, which, if properly cooked, with plenty of vegetables, would form a most delicious meal at the supper table, particularly in the season of winter.

To me, it appears very evident that the time is approaching, when we shall all think more of keeping sheep, and less of rearing cattle for beef; the Western country people having it in their power to *deluge* the Eastern States and sea-board, with droves of the finest animals; by far cheaper than they can be reared and fed amongst us. Sheep *work* well, too, with the dairy; and both together, would form a far more profitable, as well as more convenient stock for this part of the country, than rearing calves and fatting oxen. In conclusion it may be remarked, the wool of the Southdown breed of sheep, is too coarse for fine clothing, and not sufficiently long in the staple for combing: the wool of the Leicester sheep is too coarse for good combing, while the carcass of the Merino—bearing the kind of wool which is in request—is too small and ill-formed, to satisfy our present views and wants. The union of the Merino with the Southdown, would give wool of inferior value, ranking under neither combing nor clothing; while a cross with the Leicester or Dishley, would add exceedingly to the size and value of the carcass; produce a wool decidedly long and suitable for combing, greatly improved in quality and increased in quantity, and furnishing us with a supply *at home*, of that kind of wool, which will now be so much in request; our country affording the means of increasing our flocks to any, even to a boundless extent. Z.

Bucks County, Sept. 24th, 1842.

Mr. Hidley, of Greenbush, N. Y., has this season had, from a single kernel or grain of rye, 78 stalks, well filled; and on counting the grains in one of the heads, of a medium size, or about a fair average, he computed the whole number of kernels in the 78 heads to be about 5000, or about 60 kernels to a head. This is the most remarkable instance of increase that we ever heard of—5000 for *one!*

The Provision Trade.

We make the following extracts from the circular of a highly respectable house in Liverpool. They cannot fail to interest those of our readers who deal in the articles spoken of. When a little extra care will ensure a ready market and a fair price, it is certainly bad economy, to sacrifice to carelessness and inattention, the conveniences of the one, and the profits of the other. We learn that one of the partners of this house, has been extensively through the United States and Canada with particular reference to this subject.
Ed.

Our new tariff being so favourable to the introduction of American provisions into England, that we have the prospect of an extensive and steady import of various articles of produce from thence, we would throw out, for the guidance of those who contemplate engaging in the preparation of provisions for our market, some suggestions which we conceive to be important, and a compliance with which will operate favourably to the interests of those engaged in the trade. We are aware that the shipment of beef and pork to England, this year, has turned out a very unprofitable operation, and in consequence, many persons feel discouraged from prosecuting the trade, having got the impression that a prejudice exists in this country against American provisions. Such is not the case however. It is true that those articles have been almost unsaleable in our market, but the reason is found in the fact of their entire want of adaptation to our tastes, and their general inferiority to what we have been in the habit of receiving from Ireland and Hamburg. Of this inferiority there is sufficient evidence in the fact, that, while Irish pork has been selling freely at 70s. a 75s., the American has been with difficulty disposed of at a price equal to 48s. duty paid.

This inferiority as regards pork, arises principally from the hogs being generally fed on beach nuts, or other wild feeding, which makes the meat soft and oily; but it is partly owing also to the hurried way in which provisions have been cured and packed, especially in the Western country, and to the use of an inferior salt, quite unsuitable to the purpose. We would urge strongly on shippers, the propriety of bestowing more care on the selection and preparation of pork for our market in future, as a soft and inferior article is almost unsaleable with us, and the shipment of such will be certainly productive of loss to the owner. These remarks apply with equal force to beef, which has been inferior, not only in consequence of insufficient fattening, but also from being very roughly handled. The form too, in which both articles have been cut, has tended to occasion this depreciation in our market, and although it may not appear of sufficient consequence to affect their value, yet taking into consideration that our buyers have been accustomed to a certain cut for many years, it is reasonable that their tastes should be consulted. Of one thing we feel assured, that shippers will find it to their advantage to fall in with the requirements of our market.

Fine leaf lard, if unmixed and well managed, will, we think, be a profitable article of shipment. It is put up in neat white hooped kegs, containing about 40 lbs. each. The lard is poured into the kegs at the head, and so soon as it has cooled and settled down, the surface is made level and covered with white paper, which prevents it from adhering to the lid when opened for inspection in our market. It is also put up to a considerable extent in bladders, and shipped in hogsheads, packed with bran or cut straw. It is important that the bladders should be well cleansed by scraping and the use of acids, so that they may be tolerably transparent. The inferior lard may be put up in packages of any size, which, when large, should be iron hooped.

By the subjoined extract from the tariff, it will be seen that the different duties in favour of colonial produce are so great, as to give a decided advantage to Canada, in the shipment of all provisions for our home consumption. Lard is admitted on favourable terms, and as our demand for that article for machinery manufacturing purposes is very large, we would strongly recommend that the soft pork should be melted down and shipped in that form.

The high duty on foreign butter being retained, will prevent any regular trade in that article from America, except when prices are so low as to make it an object of attention for shipment, as grease; under this name, it is liable to a duty of 1s. 8d. per cwt. only. In Canada the soil appears to be very favourable for the production of this article, and under the present modified colonial duty, it will become, we think, one of very large export. The principal fault in Canadian butter at present, is, that the milk is not sufficiently pressed out, and consequently, when shipped on a long voyage, it becomes rancid before it can be consumed. It should be packed in casks containing from 70 to 80 lbs., which must be air tight.

Cheese has already been shipped extensively, and as the quantity produced is increasing every year, it is likely to become an item of considerable trade. This article has been shipped heretofore without much

judgment being exercised in the selection or assortment of the qualities, which has prevented the returns being so satisfactory as they otherwise would have been. American cheese is for the most part insufficiently pressed, which gives it, when cut, a porous, or honeycomb appearance: it is also unpleasant in flavour, owing to the too free use of runnet. The removal of these faults would very much enhance its value in the English market.

With respect to grain and flour, it will be understood that the new corn bill has placed the trade on a much more safe and steady footing, though there will always be uncertainty while the principle of the sliding scale of duties is preserved.

We have expressed our belief, that under the existing tariff, a large trade in produce will arise, but when we look at the rapid progress of free trade principles in Britain, and the urgency of the popular demand for cheap provisions, we may safely predict a much more extended trade within a few years, in consequence of the still further modification of our provision laws.

J. & C. Kirkpatrick,
Produce Commission merchants.

Present duties.		*Foreign.*	*Colonial.*
Bacon,	per cwt.	£0 14 0	£0 3 6
Beef, fresh or salted,	"	0 8 0	0 2 0
Butter,	"	1 0 0	0 5 0
" as grease,	"	0 1 8	0 0 3
Cheese,	"	0 10 6	0 2 6
Hams,	"	0 14 0	0 3 6
Lard,	"	0 2 0	0 0 6
Pork,	"	0 8 0	0 2 0
Tongues,	"	0 10 0	0 2 6

Five per cent. extra, is payable on the amount of the above duties.

Liverpool, Sept. 1st, 1842.

Health.—A great number of diseases arise from checked perspiration, and might be prevented by timely care. If a person perspiring freely, gets wet or stands in a draught of cold air, or lies down on the damp ground, or drinks cold water, he runs a great risk of seriously injuring his health; and the more relaxed and weaker he is from his work, the greater is the danger. When wet he should keep moving about briskly, and never sit in his damp clothes if he can help it. The sooner a person gets into a perspiration after feeling the least unwell from its being checked, the more certain will he be of avoiding a cold or fever. A good way to induce perspiration is to rub the body with a coarse towel before a fire.—*Selected.*

Belgian Husbandry.

In no part of the world has the cultivation of the soil attained greater perfection, than in Belgium; and the numbers of a work devoted to a description of the husbandry of that country, and the manner in which, by persevering industry, its barren sands have been converted into the most fertile of soils, are not the least valuable of the series published by the London Society.

Farmers in this country, speak of the impolicy of extensive outlays in improving their farms; "It will not pay the expense," is the objection most frequently made, and one which is the most forcible, in reply to those who urge upon them systems, for the permanent melioration of their soils. We have sometimes been disposed to consider this feeling of regard to immediate expense or profit, more as the natural result of that restlessness of character, which is said to belong to us as a people, and which leads us to suppose, with reason, that what will not pay *now*, may be lost to us *for ever*, as from our known migratory propensities, it is scarcely probable our lands will remain in our hands, or those of our children, for any considerable time, rather than of any disinclination to encounter the labour which an improved husbandry requires. The benefits of a good system of farming, or the evils of a defective one, can only be fully seen and appreciated in a considerable term of years; on such lands as the greater part of those in this country are, when brought under cultivation, what may be called the *skinning, or scourging system*, in which, repeated crops, with little labour and no manuring, are taken off, may be the most profitable for the time, although fatal to the soil and the prosperity of the farmer in the long run; but when the permanent value and productiveness of lands are taken into consideration—when it is remembered that it is much easier to keep lands in heart, than to restore them when reduced to sterility; and that the eventual agricultural prosperity of a country is depending on a correct system of management, the importance of selecting the best models, and conducting our farming operations with reference to future results, as well as present profits, becomes perfectly evident.

To illustrate the effects of the two systems of farming, or rather, to show the results of the improved one, as compared with that generally practised with us, we give a few extracts from the papers on Belgian farming; and the first is a description of a farm of one hundred and forty acres, on the river Lys, near Courtnay.

"Of this farm, near twenty acres are in fine meadows along the river, occasionally flooded in winter, but not irrigated. About ten acres are rich, heavy land, adjoining the meadows, in which beans and wheat thrive well: all the remainder, about one hundred and six acres, lies in an oblong form, bounded by a hedge-row; at one corner of which, nearest the river, stand the farm buildings. A road or path, six feet wide, runs through the middle of the field, and the road or path that leads to the farm-yard, skirts one end of it. The soil of this large field, is a rich, light loam, which lies over a substratum of clay, but at such a depth as to be perfectly sound and dry: it is not very fertile in its own nature, but has been rendered so by many years of an improving husbandry: every part of the land has been repeatedly trenched and stirred *two or three feet deep*, and the immense quantity of manure, chiefly liquid, put on year after year, has converted the whole into a rich mould; the strength and vigour of the crops bear witness to the goodness of the husbandry.

"As we walked along the path, which is just wide enough to admit the wheels of a cart, the whole produce might be seen at once. The flax had been pulled, and remained stacked on the ground; the colza (cole, or rape seed,) had been beaten out, but the stems remained where they had been cut; there were fifteen acres of most beautiful flax, of a bright straw colour, and the stems a yard long; this, besides the seed, was worth in the stack, from twenty-five to thirty pounds sterling, per acre; twelve acres of colza had produced about four hundred bushels of seed; eighteen acres of oats looked so promising, that they could not be set at less than seventy bushels per acre; eighteen acres of wheat, which stood well, with short, plump ears, were estimated at forty bushels per acre: eighteen acres of rye, with straw six feet high, would probably produce rather more than the wheat. There were six acres of white poppy, of which every plant was strong and upright, and the produce of which was estimated from twenty to twenty-three bushels of seed per acre; six acres were in potatoes, expected to produce at least twenty-two hundred bushels; about an acre was in carrots, which looked fine and large; twelve acres were in clover, nearly the whole of which was cut green, as food for horses and cows, and produced three good cuts in a year; the ten acres of heavy land were partly in beans, and partly in wheat; and the stock kept on this farm, consisted of twenty-seven cows in milk, five or six heifers, nine horses and three colts."

It cannot fail to strike the most inattentive reader, that the crop of this one hundred and twenty acres arable, greatly exceeds, perhaps doubles, that of our ordinary farms of the same size; while on many of what are called our *dairy farms*, of about the same size, not more stock is kept than on this *grain farm*. *Manuring and deep tillage* have done this for the Brabant farm, and it will do the same for any, or almost any, on which it is adopted. We are convinced that money expended in converting land into rich garden mould, is well applied, although for the moment, it may seem to be thrown away, particularly on lands, the owners of which are expecting to get to the far West, by "year after next, at furthest." We add a description of the tillage culture of another farm of about four hundred acres, of naturally first rate land, but which, by being treated as described, is so much deteriorated, that the crops rarely more than half equal those on the same number of acres on the one just noticed.

"The rotation on this farm, is as follows: 1, fallow; 2, winter barley; 3, beans; 4, barley, or wheat; 5, beans, clover, potatoes; 6, wheat; 7, oats. Thirty cart loads per acre, of long manure, the straw not much decomposed, are put on the fallows before the last ploughing, and the winter barley is sown in October; the produce being eight quarters, or sixty-four bushels per acre. Wheat, on the same preparation, gives from thirty-two to forty bushels per acre, so the barley gives the largest crop, and with the least exhaustion to the soil; every year a portion of the pasture is broken up and planted with colza. The natural fertility of the soil is shown by the succession of crops produced on the newly broken up land, without manure, viz.: colza, wheat, beans, barley, beans, wheat, clover, wheat, beans, oats; but after this *scourging*, no wonder the land needs *rest;* and this is given without much care, by merely allowing the natural grasses to spring up, without the trouble of sowing the seeds: it takes, however, three years before there is any tolerable pasture, but as it remains nearly twenty years before it is again broken up, the deterioration is not so apparent; but under a regular and judicious course of husbandry, this land might be kept up to the highest state of fertility, and the ultimate profit would be much greater."

This is a picture of the farming so prevalent *in this country*, and which is fast lessening our products and ruining our lands: it may be fairly called the *exhausting process*, as the whole object seems to be, to get as *much* from the earth, and return to it as *little* as possible. By the first mode of

farming, the land improves constantly, growing more productive, and of course more valuable: a farm cultivated in this way, by deep tillage, thorough management, and a well conducted rotation, becomes in time, a rich mould to the depth to which the soil is stirred, and the roots of plants, having thus ample room for range and pasturage, the crops are invariably good; and thus the labour and expense is repaid, and a soil is formed, far superior to the richest native earths, and which can then easily be kept in condition to give the most ample crops.

Cultivator.

For the Farmers' Cabinet.

The Crops and the Prices.

In almost every newspaper that meets my eye, I notice accounts of the extraordinary crops of wheat, which have this season been harvested throughout the whole country. From these statements, a stranger to the facts might be led to suppose, that this abundance is so great and so universal, that a seven years' famine could not exhaust it.

Whether these misrepresentations,—so widely circulated,—originated in ignorance or design, it is needless to inquire, and useless to know, any further than to place farmers on their guard against the consequences of such an erroneous impression.

So wholly groundless are these reports, and so wide of the truth, that instead of a large excess beyond a usual crop, the yield, in grain, will not equal the average produce of the last three years, by a large amount, while the quantity of straw is great, almost beyond precedent. To this last circumstance may be clearly traced the mistaken opinions of many persons, unskilled in the art and mystery of agriculture, who, in passing through the country, are deceived by appearances, and promptly conclude, on observing a large bulk of straw, that the quantity of grain must also be large in proportion. This is by no means, a sure criterion by which to judge, and as applied to the present crop, is certainly very fallacious.

Many farmers in this State, and in New Jersey, complain, that upon threshing their wheat, they obtain but little more than one half the usual quantity of grain, from a given number of sheaves, and that of inferior quality. This, it is presumed, has been occasioned by the rust, which, from accounts, has prevailed this season in every section of the Union, and must prove injurious to the wheat crop generally;—that however, which was sown very early, it is discovered, has suffered least.

Several of our country millers having discovered this failure in the wheat crop, have already repaired to the cities, and taking advantage of the present overflow of the markets, and the consequent depression of prices, have laid in a large supply, to guard against the deficiency which they foresee will occur before the next harvest. It may be inquired, how it happens, if the wheat crop throughout, is so ordinary and so much less than usual, that the supply is already equal to, or greater than the demand? I answer, one cause may be traced to the mistaken opinions of many farmers, who have been led by false reports to believe that there is a superabundance of grain in the country, and conclude that prices will decline as soon as the present want is satisfied. This groundless fear has caused a rush into the markets, and has in a measure produced the very evil that was apprehended. Another cause may be discovered in the want of barns and shelters, in which to store away their grain in the straw, that many farmers in new settlements experience, and who, to prevent loss or accident, conclude it to be safest to thresh it in the field, and sell it immediately. Another cause, and perhaps the most prominent and general, is the indebtedness of many, which obliges them, even at a great inconvenience and a heavy sacrifice, to thresh their wheat directly after harvest, and convert it into money as soon as possible.

These, with several other causes that might be specified, have occasioned this premature flood of grain in the markets, and the consequent decline in prices. P. W.

Rural Retreat, Northampton County,
Pa., Sept. 6th, 1842.

Good Tillage.—The ancient husbandmen used top dressings of hot manures, such as pigeons' dung powdered, which was put in with the hoe. In the practical operations of agriculture, when we take into account the simple mechanism they employed, they were by no means contemptible: thus Pliny tells us, they were particularly careful in ploughing, endeavouring to have perfectly straight and even furrows. They ploughed the land three times over, always before sowing; sometimes taking a furrow nine inches deep, and sometimes only three, while on heavy soils, nine ploughings were frequently given, making a fallow every other, or alternate year. Indeed, it would appear that the advantage arising to vegetation from the soil being well pulverized, was well known; for Cato being asked, "What is good tillage?" answered, "To plough." "What is next?" "To plough; the third to manure; the remainder is to sow plentifully, to choose the seed carefully, and to eradicate the weeds." Hannam.

From the National Intelligencer.

The Polar Plant of the Western Prairies—a Vegetable Compass.

Washington, August 9th, 1842.

Dear Sir,—In offering through you to the National Institution, a dry-pressed specimen of the *Polar Plant of the Western prairies*, it is proper that I should give a description of it and of its location. It is a species of fern, with one large flat leaf, *whose plane always points to the north and south.* The leaf is symmetrically disposed about the stalk. It attains the height of from 10 to 16 inches, and it is believed that it never blossoms. It is spread profusely in large beds over all the Western prairies, from the far north-west to the far south-west. It has been seen in the prairies of Wisconsin and other regions east of the Mississippi. It is never found in the forests; or, in other words, out of the prairies. It has been well known to the hunters and trappers of the West, and to the officers of dragoons; but I believe that its existence has never (at least extensively) been made known to the world. Its plane is always in the plane of the meridian, when not disturbed by high winds or other external causes. The indications are always most accurate in the valleys, where the beds are sheltered from the winds, and where the traveller finds them arranged in parallel positions, faithfully pointing out the direction of the meridian. The leaf is symmetrical, and thus there is nothing in its indications to distinguish the north from the south.

The specimen which I send, was plucked from the prairies near Fort Gibson, west of Arkansas.

That its indications are actually the same wherever found, is the universal testimony of all who have known of it; and I have met many who have noticed it from south of Fort Towson to a considerable distance north of Fort Leavenworth. In many instances, those who spoke of it derived their first intimation of its existence from that excellent officer and capital woodsman, Captain Nathan Boone, of the first regiment U. S. Dragoons, son of the celebrated Daniel Boone.

The cause of the polarity of this curious plant, yet remains to be discovered. Being symmetrical in shape, or rather the weight being equally distributed about the stem, it is possible that its sap or fibre is so thoroughly impregnated with certain salts of iron, as to be deviated, from the period of its infant growth, by the action of the magnetism of the earth, turning like a compass needle on its stem or root, as a pivot. That it is not caused by the action of light, would seem probable from analogy, as vegetables acted upon by light, are noted for turning their leaves or blossoms towards the sun, instead of from it. At mid-day, the plane of the Polar plant passes through the sun, and thus it shuns the light. I have noticed it in long-continued cloudy weather, and could find no alteration in its position.

As the existence of the torpedo and the electrical eel exhibited the influence of electricity on animal life, this plant is very interesting as showing its probable connexion also with vegetable life; thus furnishing a link to supply the chain of gradation. It is well known that there are many distinguished naturalists and professors of physiology, who would go higher still, even to the human frame, and predict the final discovery of the intimate connexion between electricity and the operation of the nervous system. Any fact connected with the action of electricity or magnetism, (supposed to be one and the same agent,) is now especially interesting, when there are so many ingenious minds throughout the world, devoted to such investigations.

I have ascertained, to my satisfaction, that this plant has been well known to trappers and to many of the Indian tribes, and that they have been in the habit of availing themselves (in their tours over those vast tracts) of this humble but omnipresent guide, which a kind Providence has sprinkled over that region, and which is thus available in cloudy weather, when the sun and stars are denied them. Even if it is granted that it is less needed by the red man, no one will deny its uses to the whites, in a country destined still for a long period, to be roamed by hunters, traders, pioneers, and other white men.

I will here add, that Captain Boone also states, that there is spread all over the far West, a certain root, called the "snake root," whose juices are very grateful to quench thirst, and which is found in the greatest abundance in those parts of the prairies which are high or dry, and most likely to be deprived of water in a season of heat and long drought.

It is needless to descant upon these beautiful and striking examples of the wise provision of *Nature*, furnishing a vegetable compass and the means of quenching thirst, ever ready for the wanderer, and both located in a region destined, perhaps, for the longest period in the history of the world, to be occupied by a roving population.

I am, with high respect,
Your obedient servant,
Benjamin Alvord,
Lieutenant U. S. Army.

To F. Markoe, Jr., Esq.,
Cor. Sec. National Institution.

From the Maine Cultivator.

Butter making in New York.

Mr. Editor,—Business led me to visit Goshen and Minisink, Orange county, N. Y., in my late journey to that State, and knowing that it was noted through the Union, as a superior butter making country, I determined to learn every part of the process. I was surprised to find that after the milk is strained, every part of the process differs from ours.

The milk is strained in pans, or oaken tubs, holding two pails full. Every thing is done in the cellar. The milk is not meddled with until it *coagulates*, when each day's, or each half day's milk is put in the churn with nearly an equal quantity of cold water in summer, and warm water in autumn or winter, to bring it to the proper temperature, which is from 55 to 66 degrees of Fahrenheit.

The churn is made in the barrel form, of oak, hooped with iron, with a wooden hoop three inches wide at top, in which the cover rests. For 6 to 10 cows, the churn should hold 30 gallons, and in that proportion for a larger number. I believe they rarely exceed two barrels, as in large dairies they prefer to churn several times a day, to the use of larger vessels.

Churning is never done by hand, except for a single cow. In small dairies it is done by a dog or sheep, on an inclined wheel, propelling the dash by very simple gearing. Those larger, have horse, or water power. The motion can be communicated to the shaft and arm, elevating and depressing the dash a convenient distance from the moving power, by two wires. For a dog or a sheep, (the latter is preferred, both from economy and efficiency,) a wheel 8 feet in diameter, is inclined about 22° with the horizon, on which the animal is placed, having cleats nailed on to prevent his slipping. No other harness is required than a strap around the neck. His weight is sufficient to move the machine. On the upper side of this wheel is fastened a cast iron cog wheel, or circular racket, 3 feet in diameter, which carries a pinion and crank. The wheel is often out door—sometimes in the cellar. It may be in a barn or shed, and the motion communicated by wires, as before stated.

When the butter begins to curdle, as it is called, all is washed down with another pail of water, and the motion continued till the butter gathers. Let it be remembered *the butter is never touched with the hands.* All is done with a short ladle, the blade of which resembles in shape the clam shell, and is five inches across at the end. The handle about five inches long.

The ladle and tray are always kept filled with cold water, when out of use, to prevent the butter from sticking to them.

The butter is worked and salted with the ladle in a tray. When it has stood long enough to become firm, after salting, all the buttermilk is worked out, and it is packed down solid in tubs of 40, or firkins of 80 lbs. If it cannot be made solid by the ladle, a pounder is used. When one churning is put down, a cloth is put on, covered with salt. This is taken off at each addition and replaced, until the tub, or firkin, is almost full, when half an inch of strong brine is poured over the cloth. Salt is never left between the layers.

They prefer *blown* to *ground* salt, because it is finer, and diffuses itself sooner and more perfectly through the mass; it requires a greater measure, but the same weight.

A churn used daily, is cleansed twice a week. The tubs are prepared of oak or ash, and when wet, rubbed thoroughly with as much fine salt as will stick on the inside.

Butter thus made and cured, will keep for years in a cool place, and sells on an average, fifty per cent. higher than butter made in the usual way in our State.

Cows average from 150 to 200 pounds a year, and the buttermilk is estimated to make 100 pounds of pork, which, when it brought 10 cents, paid all expenses of making the butter—*now*, only half.

Some churn over the buttermilk after standing one day and pouring off the water. One man who had ten cows, told me he made all the butter used in his family, in this way, and had 20 lbs. on hand.

Yours, truly,

James Bates.

Norridgewock, Sept. 20th, 1840.

The Earth is Beautiful.

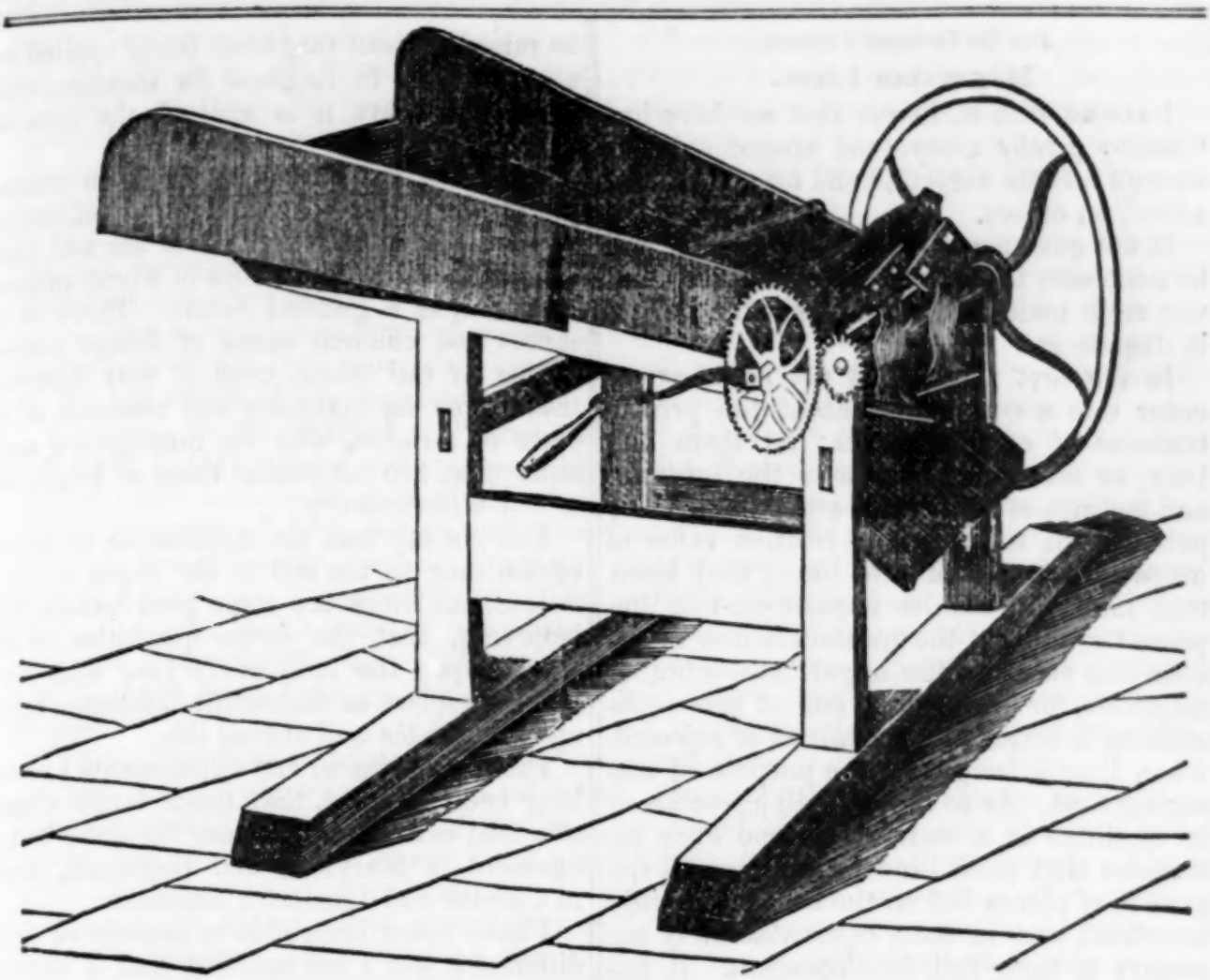
The whole broad earth is beautiful,
To minds attuned aright,
And wheresoe'er my feet are turned,
A smile has met my sight.

The city with its bustling walks,
Its splendor, wealth and power,
A ramble by the river side,
A passing summer flower;

The meadow green, the ocean swell,
The forest waving free,
Are gifts of God, and speak in tones
Of kindliness to me.

And oh! where e'er my lot is cast,
Where e'er my footsteps roam,
If those I love are near to me,
That spot is still my home.

Caroline Gilman.



THE VIRGINIA CHAFF OR STRAW CUTTER.

The above cut represents the *Straw or Chaff Cutter*, invented by the talented editor of "The Southern Planter," C. T. Botts, Esq., which obtained the first Premium at the late Exhibition of the Philadelphia Agricultural Society. The mode of its operation is simple and efficient, and its performance was admitted to be superior; cutting the straw of a proper length for feed, and making clean work. A description of this valuable addition to our Agricultural Implements, is given in a late Number of "The Southern Planter," published at Richmond, Virginia,—which work we strongly recommend to the notice of our readers; and from thence we copy the following remarks:

"The Inventor had been long ago satisfied, that the qualities required in a Straw Cutter, were simplicity and durability. Many Cutters whilst in order, are sufficiently effective; but from the failure to bring them within the power of common management, they have generally been abandoned for the imperfect Cutters made by the common black-smiths of the country. Keeping this fact in view, and deeming it unimportant whether it required one minute or two to cut a bushel of straw, the Inventor applied himself to the construction of a knife, which, if less rapid in execution, would be more durable, and within the control of the simplest capacity. This he found no easy task; but after years of thought and trial, he flatters himself, that he has more than accomplished the end;—for while the knife is perfect in simplicity and ease of management, its efficiency is not inferior to that of any other in use. And while others were satisfied with the knife as it was made twelve months ago, the Proprietor was not;—he has finally succeeded in rendering it still more simple; and it is now offered to the public without fear of competition. The nature of this last improvement consists chiefly, in shortening the knives, as represented in the engraving; they are now not wider, and are as easily ground and set, as a plane-iron; and, except to turn the crank, that is all the operator has to do, from one year's end to another.

These Cutters are made up in the most perfect and substantial manner, and are offered at prices as low as can be afforded—regard being had to substance and durability in the machine. The largest size is sold at $30;—the smaller size, rather lighter, and of a somewhat different construction, $25."

Application may be made to the Proprietors, Messrs. Botts & Burfoot, Richmond, Virginia,—or to Landreth & Munns, at their Agricultural and Horticultural Warehouse, No. 65 Chesnut Street, Philadelphia.—Ed.

For the Farmers' Cabinet.

Magnesian Lime.

I AGREE with S. Lewis that we have had "namby pamby essays and absurd opinions enough on this subject," and he might have added, on others.

If the question is further discussed it will be necessary to come to the point, or at least to a right understanding of what the subject in dispute is.

In the first place, it is not necessary to enter into a controversy about the private business of correspondents; let them buy lime, or sell it, as best suits the interests and feelings of themselves and others. The public want to know the relative value of magnesian lime and pure lime; they know that lime with all its impurities, will improve the soil, but the question is now raised upon the value of the impurities—whether magnesia, for instance, as one of those substances, is better to be retained or rejected, when lime is bought for the purpose of manuring land. As to lime, we all agree about its qualities as a manure, no one even insinuates that pure lime is injurious to the growth of plants, but on the contrary, highly beneficial, and in some cases absolutely necessary to their full developement. It follows then, as a matter of course, that magnesia is the subject in dispute.

Is magnesia injurious? is it useful? and if useful, is it equal to lime, used separately or combined; or does it occupy a neutral position, when applied as a manure or food for plants?

These are the plain and obvious questions presented to us by the nature of the case, and if we wish the discussion terminated in a way that will be profitable to the agricultural interests of the community, we must enter into a candid and dispassionate investigation of all the circumstances, experiments and facts, that bear upon the subject, and then submit to the truth, whatever it may be.

For my own part, I confess myself ignorant of the effects of magnesia as a manure, when applied separately to the soil;—never having seen it tried. My strong objections to it, have grown out of using it in combination with lime, or in other words, using magnesian lime, and comparing the effects with those produced by pure lime.

The first great and prominent feature of difference between pure lime and magnesian lime, is that the former may be used at the rate of five and six hundred bushels to the acre with great benefit; while the latter, if spread on the land at the same rate, would render it totally barren.

We know that great crops of wheat can be raised without magnesia being applied as a manure, as in England for instance, and we know where it is applied, the crop is very uncertain.

South-eastern Pennsylvania is an example of the latter—there, large quantities of magnesia have been applied to the soil, and for some reason, great crops of wheat cannot be raised, as a general result. There is a secret and efficient cause of failure somewhere in the wheat crop of that district, that baffles the ingenuity and research of a class of farmers, who for intelligence and enterprise, are not behind those of England, or any other country.

I do not say that the application of magnesian lime to the soil is the cause of this failure, but there are some good reasons for believing, that the large quantities of it spread upon the land every year with the lime, exercises an unhealthy influence, both upon vegetable and animal life.

From observation and experiments I have long been satisfied, that much larger crops of wheat can be raised under the same management in Maryland and Delaware, than in Chester and Lancaster counties.

I have never been able to account for this difference, yet I am satisfied that it exists. I am aware that the growth of wheat is influenced by peculiarities of soil, but it is not believed that Maryland and Delaware have any advantages over Pennsylvania in that particular.

One thing we know, that magnesian lime is a recent affair amongst us; previous to opening the Schuylkill navigation it was rarely used as a manure, and the heaviest crops of wheat I have known, were raised before it was introduced.

In the years 1813–14, a considerable interest was excited on the subject of agriculture in Delaware. The war with England had changed the position of trade, flour advanced to ten and twelve dollars per barrel, and other produce in proportion. This excitement brought out some heavy crops of grain. One field near Wilmington, produced 50 bushels of wheat to the acre, at least I was so informed by a person worthy of every degree of confidence. I raised 40 bushels to the acre, on a small field that had been ploughed deep, highly manured with compost, and previously dressed with pure lime. I recollect one other case, where the yield was 40 bushels to the acre; and several instances between 30 and 40 bushels.

Since the establishment of the Agricultural Society of Newcastle county, there has been considerable emulation among the farmers in their grain crops and the rearing of fine cattle; yet with all the advan-

tages of an improved system of agriculture, the brag crops do not appear to have been increased, or those of former years even equalled, since the introduction of magnesian lime; but the general effect has been similar to that produced in South-eastern Pennsylvania; the facility with which the lime can be procured, gives it a general introduction into every part of the State. Magnesian lime is enriching the soil, because the good effects of the lime more than counteract the bad effects of the magnesia.

According to the analysis of Posselt and Reiman, "10,000 parts of the leaves of the tobacco plant contain 16 parts of phosphate of lime, 8.8 parts of silica, and no magnesia; while an equal quantity of wheat straw contains 47.3 parts, and the same quantity of the grain of wheat, 99.45 parts of phosphate."

These experiments upon tobacco and wheat, throw some light on the subject in dispute.

It is well known that tobacco is one of the greatest impoverishers of the soil of any plant we raise; whole districts of the most fertile land in the country have been rendered totally barren by its cultivation.

The analysis above stated, proves that no magnesia had been extracted from the soil upon which the tobacco was raised, and I presume no one will suppose that the soil contained no magnesia; the experiment then shows that the presence of magnesia, without lime, is not sufficient to keep up the fertility of the soil: the tobacco having extracted all the lime and no magnesia, is a case exactly to the point at issue;—we have a soil containing magnesia and no lime, and a more barren soil cannot be found.

By this experiment we see the tendency the wheat plant has to absorb phosphates; and where magnesia abounds, we may reasonably conclude that the quantity taken up in the growth of the plant, injures the quality and lessens the quantity of the seed.

That the quality of grain generally, may be injured by too much magnesia entering into its composition, is shown by numerous facts and experiments. Liebig says, "we may form an idea of the quantity of phosphates of magnesia contained in grain, when we consider that the concretions in the coecum of horses, consist of phosphates of magnesia and ammonia, which must have been obtained from the hay and oats consumed as food. Twenty-nine of those stones were taken after death, from the rectum of a horse belonging to a miller at Eberstadt, weighing three pounds. F. Simon has lately described a similar concretion found in the horse of a carrier, which weighed one and a half pounds. According to the experiments of Rouvelle and Brande, "The urine of swine contains a large quantity of the phosphate of magnesia and ammonia; and hence it is that concretions of this salt are so frequently found in the urinary bladders of these animals."

These experiments prove the dangerous nature of magnesia when combined with food for animals; and reasoning from what we know of the effects of magnesian lime and pure lime, will lead us to conclude that it is equally injurious to plants.

I do not say that magnesia in small quantities, is useful or injurious to the growth of wheat; upon this point there appears to be no evidence for or against, but there is certainly much evidence to show that magnesia when applied as a manure, may be increased to a very injurious extent; which is the case, as we suppose, in South-eastern Pennsylvania, where magnesian lime, or lime in spite of magnesia, is producing such wonders in agriculture.

Sand, clay and lime, are the principal constituents of different soils that are in any degree productive of vegetation; magnesia enters into the composition of many plants, but its presence in a plant is no evidence of its being suitable food—it is only evidence that the plant has taken it in as food. It may have received it in the same way that sheep eat the leaves of laurel, and birds eat poisonous berries, because they can get nothing better.

Plants, as well as animals, are sometimes forced to take in food that stultifies their growth, lessens their powers of production, and ultimately terminates their existence. It is now well ascertained that there is a peculiar poison sometimes generated in salted provisions, that slowly insinuates itself into the system of those who feed upon them, until it produces disease and death. The disease produced by this poison, was known long before the cause and the means of avoiding its evils were discovered.

In this way, the disease among horses and swine, produced by feeding upon seeds and plants impregnated with too much magnesia, may have been destroying hundreds of those useful animals, in South-eastern Pennsylvania; and the overcharged quantity of magnesia introduced into the soil by lime, may have prevented the growth of thousands of bushels of wheat, and the inhabitants be as ignorant of the cause, as those who for hundreds of years, have been subject to disease and death from eating a peculiar kind of salted provisions.

These experiments show that magnesia enters into the composition of plants to an injurious extent, in the economy of animal

life; and I hold that where magnesia abounds, vegetables take in such large quantities that it produces disease and death. I have seen corn and white clover flourish luxuriantly where heaps of pure lime had been left by carelessness in spreading, to the depth of two or three inches. Now, it is well known that the effects of magnesian lime in any thing like similar quantities, would have prevented all vegetation for many years.

The ground I take, is that the wheat plant in South-eastern Pennsylvania, absorbs such large quantities of magnesia, that it injures the crop; and certainly until we know by direct experiment, the amount necessary to give to plants as food, or whether any, it is "absurd" to buy magnesian in *preference* to pure lime, however plausible it may appear to the "opinion manufacturer."

Upon the whole we may conclude, that if there is but little known of the effects of magnesia upon animal and vegetable life, that little goes to strengthen the opinion that it is "exceedingly injurious" to both.

The facts and circumstances above stated, form the grounds upon which my opinion is founded on the subject of magnesian lime as a manure; I now ask where are the proofs upon which your correspondent, S. Lewis, rests his opinions?

He relies entirely upon the fact, that "magnesian lime, and no other" has produced surprising effects in the agriculture of South-eastern Pennsylvania, which is no proof at all, for no one has ever denied it—no one has even insinuated that magnesian lime is not beneficial to the soil. If S. Lewis intends to rest his defence upon the mere fact, or literal meaning of what he asserts, that the improvements in agriculture have been produced by "magnesian lime and no other," the argument is at an end. He might, with as much reason assert, that those improvements were made by sandy lime and no other—the assertion might be true, but destitute of interest and point. Everybody knows the lime in dispute is impure, but is there any one who prefers the impurities to the lime itself? Is there one farmer in South-eastern Pennsylvania, who would buy sand or magnesia, instead of lime, at the same price, if he had his choice? for that is the real question at issue. As yet, no one has shown that magnesia is in the least degree useful as a manure; while on the other hand, evidences are numerous of its deleterious effects upon vegetable and animal life; its advocates therefore, should either show some proof of its good qualities as a food for plants, or abandon its defence.

B. Webb.

Wilmington, Delaware, Tenth mo. 5th, 1842.

For the Farmers' Cabinet.

Respected Friends,—My object in addressing you at this time, is to get information. I manured my corn-field early last spring, with the intention of seeding it this fall and laying it down with grass; I have been prevented from fully accomplishing my purpose, in consequence of the dry condition of the ground, which has rendered it unfit for working. After getting the field about half broken up, I abandoned the operation, seeing how poorly, after much labour, the work was done. I now design, should I receive encouragement from any practical operator to plough very early in the spring—sow oats and grass seeds, and either mow the oats for hay, or cut and feed it in a green state to my cattle. As I am entirely unenlightened on this mode of culture, and my neighbours around equally in the dark, I wish to obtain all the information I can through the medium of the Cabinet, whose pages have been greatly conducive to the benefit of the farmer. Such of your readers as may have information to impart, will please to do so, and oblige Roller.

Montgomery County, Tenth mo. 25th, 1842.

Picking winter apples.—The last of September and fore part of October, is the usual time for gathering winter apples; the flavor may be better if they are allowed to hang on the tree till the middle of this month, but the apples will not keep better, and in many situations they are exposed to waste.

It is common to take a small basket on to the tree and there fill it, then come down and empty it, or let it down by means of ropes, which will upset the basket; but a better way is to prepare some bags or piles of hay, and place them under the tree to throw the apples on; the bag or mass of hay should be so formed, that the apples will roll away from it as soon as they strike. With this preparation a man will pick much faster than he will with a basket tied to himself or to his ladder. A boy below, can change the position of the bag or cushion, and also pick up the apples.—*Mass. Ploughman.*

Toads.—Among the enemies of bees, the toad has not been mentioned. I am not willing to bring a charge against any of my fellow creatures, however humble in the scale of creation; but the toad destroys many bees. I have seen several skulking near mine, and been informed that, on destroying a toad, more than a dozen bees were discovered in its stomach.—*J. Murray.*

For the Farmers' Cabinet.

Human foot-prints in solid Limestone.

Middletown, Delaware, Sept. 29th, 1842.

Messrs. Editors,—In page 44 of the current Volume of the Cabinet, I have observed an article on human foot-prints in solid limestone rock. The description of this rock, and of its original location, as given in the article alluded to, is so nearly correct, that I should not have considered it necessary to notice it, only from the fact that I had long since drawn up for preservation, a description of this same stone, as well as of another stone and specimen of an ancient relic, which I considered a much greater curiosity. But being only a *humble mechanic*, I thought, if published, it would be passed over as unworthy of observation or remark from antiquaries, geologists, or naturalists, or others able to treat on such subjects; as articles generally are, that emanate from such humble sources.

Mr. Paul Anderson states in a letter dated October 11th, 1841, that "A Mr. John Jones claimed a sort of ownership" to that rock, from the fact, that he, Jones, was the first discoverer of it that season, and that he employed Jones to "cut out the slab for Mr. Frederick Rapp." Now Mr. Anderson writes from memory, near a quarter of a century after this transaction took place, and as he was only an agent in the affair, he might have made a slight error in his statement,—unintentionally, no doubt. This error will be in part corrected, when I state, that on my first landing upon the shore at St. Louis, from my small keel-boat, on the 25th of October, 1816, near twenty-six years ago, the first thing of any note, that met my eye, was these foot-prints; and before I again stepped on board of my boat, I ascertained from a gentleman, then on the shore, a bricklayer, an old acquaintance from Philadelphia, a Mr. James Loper, that any person who wished, could quarry stone at that time, anywhere along the shore; and that the shore was considered public property. I then made up my mind at once, that that stone should soon be my property. And in the course of the following winter I had it cut out and hauled up and placed against my yard picquet fence, on its edge, with the foot-prints inward, so as to prevent their being defaced by mischievous persons. It stood in such a position that the prints could be easily seen from the inside of the fence; and I suppose it was there visited by thousands: more persons probably saw them there, than had ever seen them before. It was there that my friend Paul Anderson, first saw them, and not in their original bed on the margin of the river, as his letter indicates. Mr. Anderson did not arrive at St. Louis, until the spring of 1818 or 1819, I am not sure which,—but not till more than a year after I had placed the stone in question, against my fence. Had I not taken it up at that time, it might have been forever lost, as some Frenchmen were at work within a few yards of it, when I commenced cutting it out. They considered it nothing worth preserving, as they said they had seen and quarried near these same foot-prints, other small foot-prints, and the prints of small children's hands.

There is a mark on the face of this stone, which I see has escaped the observation of all those gentlemen who have visited and remarked upon it, which I considered as worth preserving with the foot-prints; and in cutting out the stone I was careful to preserve them. The individual who made those foot-prints, stood facing, or looking up the shore, and while in that position, it appears as if he had reached forward and with a small stick, or with his finger, had made an irregular, or oval mark near his toes. The impression of the oval mark was about the depth all around, as that of the foot-prints; and in laying off the stone for cutting out, I brought the inner side of the oval mark to about the centre of the stone, thereby preserving the whole entire.*

The stone, at the time it was cut from its original bed, was very brittle and shelly; much more so than those of the ledges higher up from the water, and nearer the surface of the earth—owing, perhaps, to its being so nearly between wind and water; it required great care in taking it up, to prevent its crumbling. It had to be cut with chissels entirely through the stratum, which was about one foot thick.

It is true that I had many extravagant prices offered for it, while in my possession, though previous to that, but little value had been set upon it. I think Governor William Clarke told me he had offered a Frenchman two dollars to quarry it for him. It cost me thirty-five dollars to quarry it and place it against my fence. Had an unskilful hand attempted to quarry and haul it up, ten chances to one, it would have been destroyed: and after I had sold it, although its removal was superintended by Mr. Anderson and Mr. Baker, Mr. Rapp's business man, they broke it in two, and much de-

* Although this mark, or scroll, was not, for brevity's sake, alluded to by L. N. in his communication, page 44, Cab., yet in the original article in Silliman's Journal, from which L. N. drew his information, it is mentioned, and the description there, very well corresponds with this of Jones.—Ed.

faced the prints, before they had removed it twenty yards from where it had stood a long time, and acquired a good deal of hardness. Though but little value was set upon it while it was daily seen by the citizens of St. Louis, many regrets were expressed when it was about to be removed from the shores of the Mississippi, and no one regretted its removal more than I did.

Your correspondent, L. N., quotes from Dr. Owen, who says, "we must admit the probability, that the aborigines of North America were unacquainted with the use of iron tools." With Dr. Owen and all other writers on that side of the subject, I must beg leave to disagree, as a specimen of a most ingeniously wrought metalic instrument was found by me, the construction of which must have been long anterior to the date of the foot-prints, or to the erection of the mounds on the "American bottom," as its high location will show.

But I must stop short and refer you to my original notes, made long since, upon this subject, and not made public, for the reasons set forth in the beginning of this communication. That vast country has undergone great changes upon the face of it. They are indicated by the marks of the abrasion of the water, several hundred feet above the present level of the river Mississippi, which show plainly on the bluff on both sides of the river, at the "Grand Tower."* One of my limited capacity, or means of obtaining knowledge, should not venture a single remark upon these changes, nor upon the race of men that then existed, or the age in which they flourished: nor will I at this time.

Respectfully yours, John Jones.

In 1818 I resided in St. Louis, and was engaged in the erection of the cathedral that has been taken down some time since. While laying the foundation with stone, I discovered, and in my wish to preserve, I destroyed, by an unlucky stroke of the hammer, what I considered a very ancient specimen of art. I had broken a flat stone about eighteen inches square in three parts, and upon turning up one piece of it, I discovered something in the shape of a part of the blade of a sword; and upon turning up the adjoining piece, it showed a continuance of the blade. This induced me to turn up the other piece also, and this showed a handle, or hilt, with the guards, &c. The sword appeared to be about the size and shape of a dress sword, worn at that time by Captain Magee, of the U. S. army. It was about fourteen inches long, from hilt to point, and very crooked. That part of the handle that is generally of bone, or ivory, was black, as if of ebony, and twisted, and reeded, and appeared petrified. All the metal part, including the blade, guards, pins through the handle, and rivets, whether of steel, iron, silver, or whatever metal they were made, showed their size and proportion as plainly as they would in that described as worn by Captain Magee. Upon the discovery, I called all hands that were engaged about the building, to look at it. They all concurred with me in the opinion, that it was a petrified† sword, and that it must have fallen upon the mud, or earth, previously to the mud, or earth turning to stone. It was but slightly embedded in the stone. Unfortunately I had not the presence of mind, or I might have preserved it entire, by simply cementing the slab of stone, which was about four inches thick, and fastening it in a box, like a plate of glass in a frame. The metal part had the appearance and consistence of rusted metal, although it retained its full size and shape. The handle, from its hardness, though broken into three pieces, I preserved several years, but finally lost them. The balance of the sword fell, or crumbled with the tap of the hammer. Immediately after its destruction, I went down to the quarries with the view of ascertaining its original position, or location. I found the men at work about ten feet below the surface of the rock, which at that place, was nearly bare of earth above; and so far from the face of the rock, or river bluff, as to admit an ox team to turn in and *back*, for conveniently loading—say about 30 feet. The stone in that quarry is of the best limestone. It lies in horizontal strata, from one inch to one foot in thickness. The quarry was on the lot of René Paul, Esq., and immediately in the rear of the stone house in which he then lived and kept store. This rocky bluff was at that time and place, about 40 feet above the ordinary high-water mark—nearly perpendicular, and much furrowed, as if by the abrasion of the water, as the bluff of that river on both sides, and also the shores of its tributaries in many places show.

At the time spoken of, I had a curious specimen of petrifaction in my possession. It was a stone which I cut out something higher up the river, than where the sword was found, and if my memory serves me,

* The Grand Tower is a fast rock, or island—a great mass of stone, several hundred feet in circumference, and is estimated by some travellers to be 200 feet high. It is situated in the Mississippi, nearest the Missouri shore, about half way between St. Genevieve and Cape Girardeau. J. J.

† Probably the metal was converted into a carbonate of iron.—Ed.

about opposite the residence of Mr. Pierre Choteau, Esq., but nearer the low-water mark. The stratum was about 10 or 12 inches thick, 8 feet long, 3 feet six inches broad; and on its face, which was very smooth, it bore the impression of two human foot-prints, about in the position a man would stand in taking aim at an object with a gun or bow and arrow, and facing up the river. I afterwards sold this same stone to the agent of Frederick Rapp, of Harmony, Indiana, and received for it one hundred and fifty dollars. This is the same stone which is described by Colonel Long, in his Expedition, as being used for a platform, or step at the church door in Harmony. (This stone ought not to have been used as a step, but on the contrary, should have been set on edge in the building, where the foot-prints and other marks could have been preserved. As they are now used, the whole prints will soon be obliterated. Will the present proprietor not attend to their preservation!)*

This last stone when first discovered by me, I thought a very great curiosity; but after the discovery of the sword, I thought this but a small affair, as it was but a petrifaction, thousands of which, of different kinds, may be found on the shores of the Ohio, in all shapes and forms; while the other—the sword, shows the work of art and civilization.

The facts are here stated in both cases,—I will leave it for antiquaries to decide, by what people, and at what age, that sword was constructed; and what was then the situation of the country above the Grand Tower, embracing all the flat country above, or within the high-water mark, as indicated by the appearance of the bluff on either side of the Mississippi, at that place. These indications plainly show that high-water mark at the Grand Tower, was once some hundred feet higher than it now is.

JOHN JONES.

NEATNESS IN AGRICULTURE.—The remark that agriculture and civilization keep pace with each other, may be applied to individuals as well as nations. If in passing through a country, we were to discover a miserable and wretched system of agriculture, we should not expect to find an educated and intelligent people; nor in passing a farm, characterized by every mark of neglect and indolence, should we expect to see in the owner, an industrious and intelligent man.

* It will, doubtless, be gratifying to the writer of the above, to learn that the slab is now preserved in Dr. Owen's Museum of objects of natural history, at New Harmony.—ED.

BEES.—We take the following from the Massachusetts Ploughman: "There is much in the history and economy of the bee, that is both interesting and delightful. The circumstance related below, seems to be one of its freaks for which it is hard to account.

"A swarm of bees was lately found in this town, occupying a *bush* on which they had located themselves, and built their comb to the size and shape of a horse basket. The comb was attached to the leaves, limbs, &c., of the bush, and was of all shapes to correspond with the bush to which it was attached. When found, the comb was stored with honey and well filled with young bees in every stage of perfection, presenting the appearance of a healthy and prosperous swarm.

"The bush which they had chosen for their residence, was of the kind called shrub oak, and was not sheltered from wind or rain. They were transferred to a hive, and are now in the possession of the writer, apparently well pleased with their new habitation, and are doing well. The comb which they had built in their out door residence, is preserved for the examination of the curious, it being a circumstance beyond our limited experience in the history and habits of the honey bee. J. B. F.

"Seekonk, August 5th, 1842."

NUMBERS.—How easy it is to speak of millions and billions, yet how difficult to conceive what even a million is! But still we should endeavour to obtain some idea of that mighty number. Suppose we speak of the national debt of England; the words expressing the round sum of eight hundred millions sterling, are already spoken: but who can form a conception of that amount! We know, however, what a dollar is; and we may, for convenience, consider its value equal to a crown piece, or five shillings. We know, too, what are minutes, hours and years. Then we may form some idea of the amount, though a remote one, when we discover by calculation, that the debt is considerably more than a dollar per minute, from the time our first parents were in paradise, to the present day!—more than fifteen pounds sterling, per hour, through all the ages of man's existence! A *billion* however—a million of millions—is a far more comprehensive term; so much so, as to be, perhaps beyond all conception. Taking the Mosaic date, as nearly as can be computed, the world has not yet existed, even one fifth part of one billion of seconds!—*Extract.*

APPLES.—A gentleman at Red Hook, on the Hudson river, recently sold twenty-four hundred barrels of apples, all of his own raising, for $3,600.

Manufacture of Horse-shoes.

Editors of Farmers' Cabinet,—According to the late census of the United States, we have at least four millions of horses, to be shod, perhaps twice round, annually. This probably requires twenty thousand tons of iron and steel, which, together with the making and putting on the shoe, swells up to no trifling item, in our yearly expenditures. Henry Burden, of Troy, N. Y., took out a patent some two or three years ago, for manufacturing horse-shoes by machinery. He does not appear, however, to have been able to perfect his plans and bring them into operation, till recently. We now learn that he is successfully at work, taking the straight bars of iron and transforming them into horse-shoes, grooved and punched, at the rate of fifteen per minute. Shoes of five different sizes are made, so that the foot of any horse is pretty sure to be fitted by one or the other. The nail holes are punched—the heel corks are turned, and the steel toe corks are welded on, &c., with an accuracy and rapidity, which the eye and hand of the most expert workman cannot attain. It is said none but the best Swedes' iron is used by the inventor, and that he is able to reduce the price of horse-shoeing by one half. I have not seen any of the shoes manufactured by this process, but it certainly appears to be such an improvement in the production and economy of an article of general necessity, that the whole country must feel interested in it.

Shoeing the horses on my little farm, has sometimes cost me twelve or fourteen dollars a year; and in rough, mountainous districts, the expense would, of course, be much greater. Now, if I could save six dollars a year in this particular, it would be as good as the present price of twenty bushels of potatoes, after I had carted them to your city. Will our smiths attend to it?

Yours, with respect, T. M.

Salem County, N. J., October 10th, 1842.

For the Farmers' Cabinet.

Thorough Cultivation of Corn.

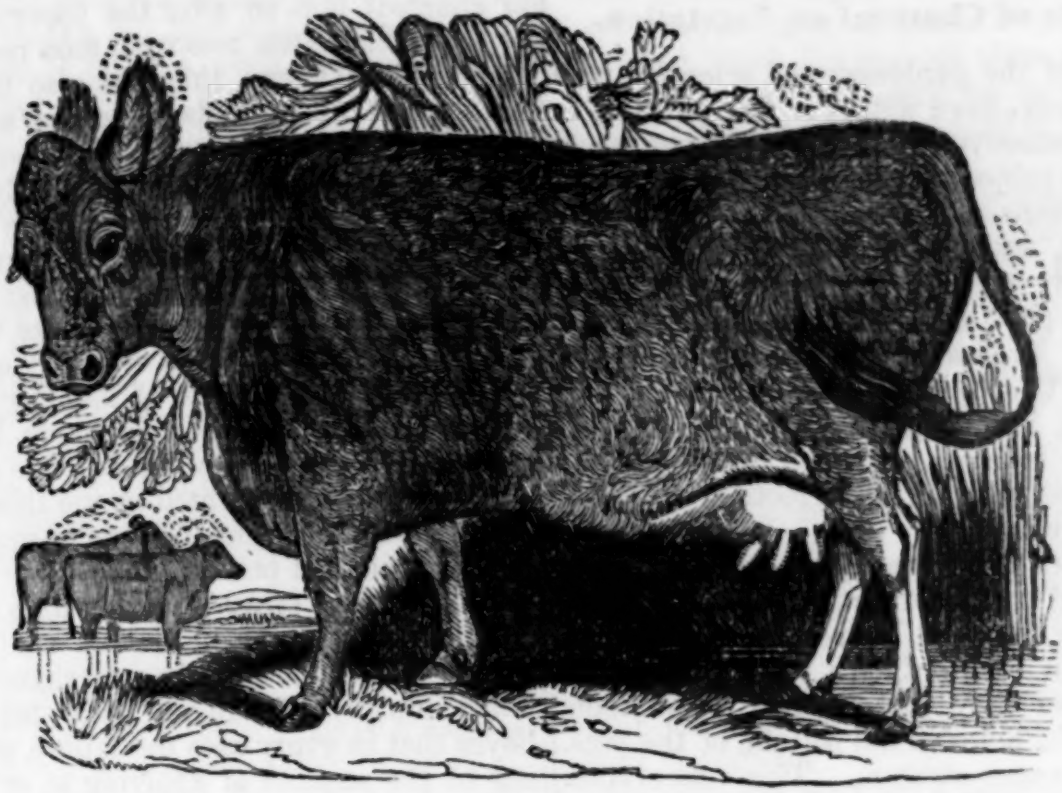
Messrs. Editors,—In the August Number of the Cabinet are two communications on the cultivation of corn, than which, perhaps, there is no subject of greater interest to the American agriculturist; it is one at least that will bear a *thorough stirring*. I must, however, be permitted to differ with your correspondent, "P. J.," as I apprehend very few of us are guilty of the sin of overworking our corn crops in *proper season*, and if he or any practical farmer, expects to grow a full crop, by merely "throwing a furrow from each row into the interval, there to lie for a season, and then to be returned to the rows as a last tending," I fear he will be disappointed in the result. My experience, however, has brought me to very different conclusions. I have no fears of overworking my crops, if done *timely*, for on that every thing depends; I make it a point never to work my corn when the earth is "full of water, and when the furrows turn over like mortar;" a worse system could not be devised. A knowing one at my elbow, says, "corn should never be worked except when the dust will fly," and I guess he comes much nearer the mark, than P. J.'s "neighbour Clifton." In sandy land it is almost death to corn to plough it in wet weather, being certain to "scald."

I would inquire by what kind of management the enormous crops of 100 bushels and upwards, have been obtained? Is it by partial cultivation, or by the most thorough system of working and stirring the soil that could be devised? I have no doubt, however, that better crops have in some instances, been obtained from fields that have received but little attention, than from others where a great deal of labour has been bestowed; but isolated cases may be taken, from which anything or nothing may be proven! Witness, for instance, the fields of my two neighbours; J., an enterprising go ahead little fellow, with more zeal than prudence, ploughed and harrowed, without regard to the weather; the consequence was, he "scalded" his crop, but not a weed to be seen. B., a "slow and easy," "time enough" kind of man, simply harrowed once, and ploughed once, and then laid his crop by; the weeds at this time, are growing most luxuriantly, and a better crop of corn than J.'s. Now, does this argue much in favour of partial cultivation? I think not. Had J. consulted the weather a little more, I have no hesitation in saying, he would have been a gainer of some 20 bushels per acre.

"S. S. I." has a very interesting paper, from which I hope to see much good result; but who ever heard of ploughing corn to the depth of 8 or 10 inches. I presume there is no field of corn in the country that would survive such an ordeal, particularly at the season when it is to be laid by.

And would it not be well, Messrs. Editors, before you consider the question answered, "How is it, it so often happens that corn which has by some means escaped its *last* workings, turns out a better crop than that which has been tended to the end," to inquire whether it has any foundation in fact. I think, upon a critical examination, you will find in it a pretty little *bull*. A.

Gloucester county, N. J., Sept. 12th, 1842.



THE SUFFOLK COW.

The Suffolk Dun was once celebrated in almost every part of England, on account of the extraordinary quantity of milk that she yielded; but the colour is no longer considered the only, or chief recommendation, in this still favoured race. The breed is still known as the Polled or Muley, although some of the calves are found with the rudiment of a horn; but these are rejected by the breeders. The Suffolk Cow is described as having a clean throat, with little dewlap; thin and short legs; the ribs springing well from the centre of the back; the carcass large, the belly heavy, with the back-bone ridged; the chine thin and hollow; the loin narrow; the udder square, large and loose, and creased, when empty; the milk veins remarkably large, and rising in knotted puffs, and this is so general, that a famous milker was scarcely ever seen that did not possess this point; a general habit of lameness; hip bones high, and ill covered; and scarcely any part of the carcass so formed, as to please an eye that is accustomed to fat beasts of the finer breeds. The prevailing colours, are red, and red and white, brindled, and the varieties of the Duns, from the yellowish cream-colour to the brown. The bull is valued if he is of a pure and unmixed red colour, and in no part of the country were the farmers more careless as to the breed, provided only, that the cows were true Suffolks; merely inquiring if the bull came from a dairy of great milkers. The Suffolk cow is not inferior to any other breed in the quantity of milk that she yields; some of these diminutive animals giving as much as eight gallons a day; six gallons not being an unusual quantity. From a comparison made between the milk of a Suffolk cow and that from a long-horn of Mr. Toosey's breed, the milk set in a bowl for thirty-six hours—it was found that the cream of the Suffolk, from three quarts of milk, weighed two and a half ounces more than that from the long-horned; and on churning, one quarter part more of butter was obtained from the cream of this cow than from that of the other. Three of these small animals, one of them a heifer with her first calf, were kept on three acres of grass without any change of pasture until mowing time; and in the winter, chiefly on straw, with very little hay; both the old cows yielded eight gallons of milk per day during the height of the season, and the quantity of butter made from June to December, was 683 lbs. The Rev. Arthur Young remarks, "One Holderness cow would have consumed all the food of the three, without returning one half the produce." There are few cows, although far superior in size to the Suffolk Polled cow, and consuming nearly double the quantity of food, that will yield more milk than is usually obtained from this diminutive, ill-formed race. Fifty thousand firkins of butter, each weighing 56 lbs., are sent to London every year from Suffolk. A small quantity of cheese is also made, but this is of inferior quality; the object with the dairy-man being butter, which commands the highest prices in market, if warranted "*the real Suffolk*," and of which, the beautiful yellow colour is often deemed a sufficient indication.

Effects of Charcoal on Vegetation.

Some of the gardeners and scientific men of Germany, have within a few years interested themselves in a series of experiments upon this subject, conducted at the royal botanic gardens of Munich, by Edward Lucas, of Erfurt, assistant gardener. The results are highly curious, and may probably be turned to good account by cultivators in this country. Professor Zuccarini, of Munich, mentions that by the use of charcoal, shoots of plants, leaves, parts of leaves, calyces, &c., may be made to grow, even of plants that seldom or never make roots in the usual way of treatment.

He states that Lucas, in the spring of 1839, discovered that several plants in a hot-house that were plunged in refuse of charcoal, showed an extraordinary vigor of growth, as soon as they had pushed their roots through the holes in the bottom of the pots, into this under stratum. This observation led to a set of experiments, which quite astonished himself and the scientific friends who encouraged him to prosecute them.

He at first used the refuse of charcoal, too fine to be burnt, from which he sifted the coarser pieces by a coarse earth sieve. He found that to answer best which had been exposed for some months to the influence of the air and weather. In such charcoal, unmixed with any other material, he succeeded the first season in getting cuttings of many plants to grow; he names sixty-six kinds; among them, Euphorbias, Begonias, Cacti, and other succulent plants, black pepper and the bread fruit. The unsuccessful experiments were few, compared with the successful. From parts of leaves, he succeeded in getting a considerable variety of plants to vegetate; he enumerates twenty-nine, including a species of Euphorbia, two of Begonia, and the sweet potatoe. All the species of Gloxinia grew, even from a flower stem, or a calyx. A species of pine (*Pinus excelsa*,) grew from the leaves.

He then mixed various kinds of earth with the charcoal, and still had the most extraordinary results. He says that all the plants he subjected to this treatment, were as much distinguished by their luxuriance, as by the more perfect developement of their individual parts. This was particularly the case with tuberous rooted plants, which besides their perfect developement, had also a much longer period of vegetation; so that the difference in this respect, between those that were cultivated in their usual soil, and those which had a mixture of charcoal, amounted to nearly two months. Orange trees with yellow leaves, having had a layer of charcoal laid on after the upper surface of earth had been removed, soon recovered their green colour; this was also the case with some other plants. He was not very particular as to the proportion of earth he mixed with charcoal, but generally found half of each to do very well, always taking care that the coal had been exposed for some time to the weather, and that timely watering was never neglected, as the porosity of the earth causes it to dry quickly. An old and sickly plant of the Doryanthes excelsa, which had been declining for two years, and had no roots left but one old and decayed one, was planted in one third charcoal. In three weeks it began to grow, and finally recovered perfectly.

Lucas, in an essay written within a year, mentions that many gardeners not having succeeded in their experiments, charcoal had fallen into disrepute among them; but he believes that in every case the failure was owing to the manner of applying it, or to the quality of the coal itself. He has found that in many cases, particularly when used in pots, as soon as the capillary vessels of the charcoal are full, a further supply of water is useless and injurious; when mixed with soil, however, it requires more frequent watering. But the chief cause of failure was the fineness of the charcoal, by which its most valuable qualities, capillarity, capability of condensing gases, and porosity, were lost.

Many new plants, of which he names seventy-two, some very difficult sorts to root, had grown in charcoal, since his last published essay. He mentions four kinds of magnolia, a myrtle, Canada pine, Indian azalea, an erica, the *tendrils of a grape*, the oleander, and two kinds of medicinal guaiacum. Among the plants he names, are species of the most opposite families, and most of them rooted much easier than in sand or earth; with some, no trial of the usual methods of propagating had before been successful at the botanic garden of Munich. He had not made much use of charcoal in sowing seeds, but when applied, it had proved very efficacious. He had made experiments upon the fitness of charcoal for packing plants for transportation; and for this purpose some young chamœdoreas, ferns, calceolarias, salvias, verbenas and young cabbage and cucumber plants, some with moss round the roots, others without any covering, were put in dry or very slightly moistened charcoal, firmly pressed down, and the closed box placed for four weeks in an airy shed, on which the sun shone for several hours; at the expiration of this period, the palms and ferns were found in a very fresh

state; the calceolarias and salvias had some yellow leaves, but had made young shoots; a species of petunia, even flowered on the box being opened; the verbenas only had suffered, but were still alive; the young cabbage and cucumber plants taken out of dung beds had rotted, but without injuring any of the plants lying beside them; cut flowers of many different sorts, kept perfectly fresh in pure dry charcoal, from eight to fourteen days. Radishes, parsnips, onions, and the turnip-like roots of oxalis lasiandra, *Zucc.*, attained a considerable size in a bed filled one foot deep with pure charcoal; the roots of tulips, which had produced flowers in the spring, being planted in the same bed, flowered again, perfectly well, late in the autumn.

To prove if any difference existed with respect to the efficacy of different sorts of charcoal, the garden inspector, M. Seitz, had charcoal made from eight kinds of wood, viz.: oak, linden, ash, beech, alder, willow, elm and fir. They were found to have almost exactly similar effects. It was very different with animal charcoal, which in this experiment, produced the most favourable results; many leaves rooted in them which had not succeeded in the wood charcoal, and some very soon produced shoots.

Zuccarini says that those leaves were found to vegetate most freely, which had strong prominent veins. The cut ends of these being placed in the charcoal, a small tuber or callosity, formed upon the extremity of each. These attained the size of a large pea before putting out roots, and from them proceeded the germ, or shoot, which formed the new plant; each vein thus producing a separate plant. He found it of advantage, as soon as the growth of the tuber was sufficiently advanced, to remove the cutting from the coal into a proper sort of mould, and, by this means, the little knob being able to provide its own nourishment, will prevent the untimely exhaustion of the parent leaf. If this precaution is delayed, an entire stoppage takes place in the growth; the knob produces neither roots nor buds, and dies; because the parent leaf cannot yield any more nourishment; and the charcoal appears to him to have a preserving and stimulating, rather than a nourishing quality.

W. Neubert, of Tübingen, discovers, however, that by the use of charcoal, plants thrive permanently in much smaller pots than heretofore. He had primulas, eight years old, with stems a foot and a half high, growing and blooming luxuriantly in pots of two inches diameter. He transplants them every autumn, and takes away half the ball of roots and all the side shoots, and is careful to keep them tolerably moist. He finds his plants (quite the reverse of Lucas's experience,) produced much fewer roots than usual, and conjectures that this may be owing to his having used beach coal instead of fir, as Lucas did.

Dr. Buchner undertakes to explain upon scientific principles, the wonderful effects of charcoal. He ascribes them in part to the power possessed by that substance of absorbing light and heat to a very great degree, in consequence of its dark colour and extreme porosity; and also to its capacity for absorbing atmospheric air. Among all the bodies capable of absorbing gases and vapors, charcoal has been proved by numerous experiments, to hold the first rank. Consequently, when long exposed to atmospheric action, it imbibes many qualities highly conducive to vigorous vegetation, and is the means of conveying to the roots of plants, besides light and heat, nitrogen, hydrogen and oxygen, in great abundance.

He remarks that for a long time it was generally supposed that charcoal, as an inanimate body, incapable of decay, contributed, in no degree, to the nourishment of plants, and that charcoal dust could only serve, at most, to make the earth looser and warmer. But Lucas found that the charcoal in which plants grew, by degrees underwent decomposition.

Judging from the effects of charcoal on vegetation, its antiseptic properties are of great importance. It has very little power of retaining water; and this property deserves great attention, in respect to recovering the health of plants which have been injured by being in a clayey soil, or too freely watered, or after continued rain, or being in contact with manure not sufficiently decomposed.

Lucas has not confined his experiments to coal. He has for six years been making use of *snow* in the germination of certain kinds of seeds, chiefly those of alpine plants. He first put into pots a portion of earth, the most suitable to the kind of plant to be cultivated; then a layer of snow, then the seed, and covered it with another layer of snow. He then set them in a box covered with glass, and placed it in a temperature of 59° to 60° Fah., in which the snow melted. Many of the seeds germinated in two days. He even succeeded with the purple crotalaria, which he had never done before by any other method. After germination, he sprinkles a little sand over the seed.

Professor I. Liebig, of Giessen, who has devoted so much learned research to agricultural chemistry, is of opinion, "that the loose formation of the snow, which allows

of an uninterrupted admission of oxygen; the exclusion of those foreign agents which are always found in a soil that contains corrupted vegetable matter; and finally, the volatile alkali of the snow,—all these causes combined, effect the remarkable appearance of germination in this process."—*From The Friend.*

For the Farmers' Cabinet.

Lamp for burning Lard.

Having noticed in the last Number of the Farmers' Cabinet, some remarks respecting Lard oil, and the subject attracting at the present time very general attention, I am induced to mention the experience I have had in the consumption of lard itself, to furnish a beautiful and brilliant light. Being lately on business in Boston, I called at the store of a friend in the evening, and to my surprise noticed his premises finely illuminated: this, however, was soon and readily explained by the fact, that he was interested in the sale of "Southworth's Patent Lard Lamp." The article in use was the common tin, or glass lamp, with a wick, just such as is used for burning Sperm oil, only with the addition of a flat copper heater, which comes up closely in contact with the flame, and descending to the bottom of the lard, returns again nearly to the top. The copper is thus heated by the flame, and it being a good conductor, the lard becomes completely liquified; and the contents of the glass lamp, after it had been under way for a short time, looked like the finest bleached oil. My friend stated that lard at eight cents per pound, in this lamp, would cost no more than the very best Sperm oil at fifty cents per gallon, and would give as much light. At his suggestion I bought a couple of beautiful parlour lamps for use, and on trial, find them perfect; the light is pleasant and bright, there is no disagreeable smell, and the wick requires to be trimmed or snuffed, only once in an evening. The apparatus for heating is so complete, that not only lard can be used, but tallow, or any other fatty substance.

And if this lamp should obtain general use, it appears to me the farmer would be spared the trouble of making candles. If he wishes to use tallow or lard, all that will be necessary, is for him to obtain one of Southworth's Patent Lard Lamps, put in the wick as he would to any other lamp, then just before he wishes a light, *melt* the tallow or lard, fill up the lamp and light the wick, and my word for it, he will have as pleasant a light to read the Cabinet by, as the oil from the whale will give. And then he has the whole within himself;—he need no longer be dependent on the success of the Whaleman; he can set quietly at home and enjoy his domestic light, and read with indifference of the poor success of this or that voyage, in search of the monsters of the deep.

Before leaving the subject it may be as well to say, that Ellis S. Archer, at 32 N. Second street, Philadelphia, has a Patent Lard Lamp, which is highly spoken of by some who have used it. V.

Philadelphia, Tenth month 11th, 1842.

Thunder Storms.

As we are so often visited by these storms, which are usually of great severity, and seldom pass over without some damage to life or property, the following facts relating to them, will be read with interest by those who have never before had them, and will serve to refresh the memories of those who studied these principles in their philosophy.

The distance of a thunder storm, and consequently the danger, is not difficult to be ascertained. As light travels at the rate of about 66,420 leagues in a second, or nearly 200,000 miles in one second of time, its effects may be considered as instantaneous, within any moderate distance. Sound, on the contrary, is transmitted only at the rate of 1,142 feet in a second. By accurately observing, therefore, the time which intervenes between the flash of light and the beginning of the noise of the thunder which follows it, a very accurate calculation may be made of its distance, viz.: when you observe the lightning, and ten seconds elapse before you hear the thunder, you are two miles out of danger; if five seconds elapse between, one mile out of danger; but if you only distinguish one second to elapse between the lightning and thunder, then you may estimate yourself, only 1,142 feet from the dangerous fluid, and the nearer to the light you hear the thunder within one second, you may count yourself in danger; by having a knowledge of these things, there is no better means of removing apprehensions. If the thunder rumbles seven seconds, you must be aware that the electric fluid has passed through the atmosphere to the earth, a distance of nearly one mile and a half. Sometimes the fluid skips from one cloud to another, before it comes to the earth. There is no danger to be apprehended from the thunder, but that it operates as a warning, when well calculated. —*Cheltenham Chronicle.*

From the S. W. Farmer.

Importance of Indigo Culture.

MESSRS. EDITORS,—Among the numerous valuable articles in your excellent paper upon various kinds of husbandry, I have seen no notice of any attention to the culture of indigo. I have been quite lately informed by a mercantile gentleman, that the price of good indigo by the large quantity, is now from $1 25 to $1 50 per pound. Believing that at much lower prices than these, the products of an acre of indigo would be far more profitable than one of cotton, I am induced to give you the following hints. As I write from memory, and have not for some years seen the work to which I refer, I am compelled to be very general in my statements.

In Edwards' History of the West Indies, there is a pretty full account of the culture and manufacture of indigo, including estimates of the labour, expense of fixtures, amount of products and price, by which a tolerably correct estimate can be formed of the profits of the culture; together with these, he gives with some fulness an account of an improved process for extracting the colouring matter from the green plant. The old method of fermenting the weed in water, is attended with many difficulties. The odour exhaled, as the plant contains a large amount of hydrogen, is exceedingly offensive and deleterious to health; but all these are avoided by substituting boiling for fermentation, and more and better indigo is obtained. A principal reason assigned for discontinuing the culture of this plant in South Carolina, was the fatality endured among servants. If, as I fully believe, this evil can be entirely avoided, why may we not add this to the other profitable kinds of husbandry in Mississippi? It is admirably adapted to all our light and dry soils, and flourishes even on the poorest pine ridges. It requires less expense of labour and machinery than cotton, and if any reliance may be placed in the statements of the historian above named, it will be found to be much more profitable. Ever yours,

A. B. L.

WHO IS RICH?—He is to be considered rich who is out of debt, and supports his family comfortably and creditably by his occupation. He is actually rich who owes nothing and is worth $20,000; he is very rich, who, free from debt, is worth $100,000; and he is dangerously rich, who is worth a million, and is not a prudent man. The possession of *no* money is inconvenient, and *too much* is burdensome. Contentment is riches. Be satisfied—be contented.

For the Farmers' Cabinet.

Philadelphia Agricultural Exhibition.

I HAVE had the good fortune to enjoy the meeting of this long established festival, and am grateful for the opportunity afforded me, of mingling in converse with my brethren of the soil. It has been a season of true enjoyment; one that throws all others of mere amusement into the shade. I attended it from a distance of many miles, purely on the score of attachment to my profession, and spent three days in the examination of every part of the exhibition, closing with that, the most exciting of all, the trial of ploughs and ploughmen. And I did this, with the intention of sketching a bird's-eye view of the panorama, for publication in the Cabinet, a work which I have read with pleasure and profit from its commencement; subject of course to your approval. You will find me speaking my sentiments plainly, but with no wish to interfere with the established rules of the Society, claiming, however, the right of private judgment and the privilege of declaring it fearlessly.

The arrangements were admirable, and reflected credit on the committee. The accommodations for stock were very extensive, and it is to be lamented that a single stall should have been unoccupied. The attendance was not equal to expectation, and I regretted the absence—from what cause they ought to declare—of several of our most spirited improvers, with their fine stock, whose presence could ill be spared. The display of agricultural implements was very large and highly interesting; and it must be told, they seemed to draw much of the company from the examination of the live stock, many of which had often before been on the ground, and had enjoyed a lavish expenditure of premiums from the small fund which it is in the power of the Society to bestow; while it is but fair to admit that the premium for the best bull, has at length changed hands—a perfectly fair award; for in my judgment, there never was a question as to the merits of the two animals; COLOSTRA'S defective rump, and indeed his hind quarters generally, contrasting so forcibly with those of the PRINCE OF WALES, as, one would think, might be palpable to every practised eye. But this decision shows, most conclusively, the uncertain and unsatisfactory nature of these awards, and will forever deter me from placing the character of my animals for public judgment, in the hands of any man or set of men, whatever. I should have no objection to *exhibit* my stock, but to commit them to the mercy of men, whom I may possibly know to be deficient in judgment and

experience—not to say prejudiced against them—to pass public sentence upon them, is what I never have done, and never mean to do. Now, here is Colostra; never in better condition or more perfect in any of his points; for years declared to be "unrivalled," and having carried away all competition; is this year, "judged" inferior to the Prince of Wales," who is not, in any respect, better than he was the last year! losing thereby, that credit which he has hitherto enjoyed, much to the profit of his owner, who will be able the next season, to appreciate the injury done to his interests by this award. Then again, the premium for the best bull over three years old, was awarded to Leander; but I would ask any man, if Leander is improved in any way, since the time when he was declared by the "Judges," inferior to Sam Slick! Again, Judge Longstreth received this year, the premium for a calf, showing very much the peculiarity of his stock, which the last year was considered so exceptionable, that it is said he removed his cattle at the close of the first day's exhibition, on that account, contrary to the rules of the Society. Now, in my estimation—which of course, goes for nothing—the best bull on the ground, was Mr. Sheridan's, of Chesnut Hill; it is true he was not offered in competition, but if he had been, he would have stood no chance for premium, as he has no pedigree! true, neither has he those crying defects, which many of those that have figured in the Herd-book and elsewhere, will carry with them *to their graves.* Indeed, I should be glad to learn what are the defects in Mr. Sheridan's bull, although he had not been kept up a day, in preparation for the exhibition.

I have said, the most interesting part of the exhibition was the great number and variety of agricultural implements; very superior to those exhibited at Albany, by the New York State Agricultural Society, a few days before, and far more numerous than the last year's collection; but in the opinion of many who were present, in no previous year had they claimed less attention from the judges; the very slight regard paid to some, and the many which were passed unnoticed, being anything but satisfactory to their owners and exhibitors. And as proof, it has been remarked, that no premiums were awarded to the reaping, or mowing machine, the drilling machine, the grass sowing machine, the root, or vegetable cutter, the corn-sheller, or the second-best straw and hay cutter; although these articles were specially appointed for competition in the published list of premiums. But stranger still; although it was officially announced that "no premiums on ploughs would, *of course*, be awarded until after the trial, to take place the last day of the exhibition;" yet, *before the trial*, two premiums were given, the first to Dickinson's, and the second to Garrett's, without the possibility of the judges having it in their power to know anything of their merits, as they had never been tried! even the owner of the "second-best plough" declaring himself "quite at a loss to conjecture how the thing was *managed*, as his plough had never been tested!" Thus repudiating the awards of the last two years, which had given premiums to the centre-draught plough, as "the best after trial."

The trial of ploughs was an arduous one; perhaps for horses and men, nothing more difficult was ever attempted, and great praise is due to the almost superhuman skill and strength displayed by the ploughmen; but how any premium could be awarded to a labour, which was as far distant from ploughing as from grubbing, I am at a loss to conceive; for the impenetrable state of the land was an interdiction to the use of any plough boasting the quality of approaching "the spade in the cultivation of the soil,"—a character which appears at length to be the desideratum sought after, and not the mere force of the wedge or the grubbing axe—for I conceive it must be clear to any reflecting mind, that the plough which is *least* effective in a soil so hard as only to be operated upon by the wedge or mattock, is the most likely to be *properly* effective on land when in a fit state to be turned; its very character of "taking up the soil and placing it, when broken, just where it is required; laying it close and even, with the interstices between the furrows filled with pulverized earth without sod,"—the very thing aimed at in spade labour—rendering it the most unfit implement of all others, to take the place of the grubber. Perhaps our Eastern friends are the best cultivators of the soil; and with them it is a *sine qua non*, that the plough shall approach "the spade in the effectual working and sub-dividing of the land;" and to the best of these, have they uniformly awarded their premiums.

On the subject of premiums I am likely to differ with many friends, and yet I cannot but believe that my view of the matter is correct. I would award none, nor express publicly, an opinion of the merits of the animals, &c., exhibited, but permit every one to bring his stock and retain his own conviction, without submitting them to the judgment of any set of men whatever; for it is hardly to be expected that strangers to animals, the growth of which has been anxiously watched for years, and their different

points commented on with unmixed delight and approbation by their owners, should be competent to judge them, so as to give satisfaction to their possessors. And what but good could result from the course proposed? one would suppose that any one who has a superior animal, would be as glad to exhibit it for *love* as for *money*, and friendly competition would then take place of the heart-burning which is now so generally witnessed. I would, therefore, respectfully propose the experiment; the funds of the Society could be expended far more agreeably in defraying the cost of the transport of fine animals from a distance, the keep of them while there, improved accommodations for visitors, and a reduction in the expenses attending the exhibition—all tending to good fellowship, kind feeling, and healthy emulation; every one retaining his opinion regarding the merits of his stock, without the mortification of hearing it publicly declared, that they are inferior to those belonging to his neighbour; by men whom he may deem quite incompetent to the task of forming a judgment. I should then expect to see many more fine cattle from a distance; the exhibiting and sale of which, both public and private, would create a wider influence; instil new life and vigor into the Society, and be the means of adding very much to its general interest and utility. Z.

October 25th, 1842.

Agricultural Exhibition.

Report of the Committee of Arrangement.

The Philadelphia Society for promoting agriculture, held their annual exhibition of live-stock, agricultural implements, &c., at the Rising Sun Village, on the 12th and 13th of October, inst. The number of cattle on the ground, was not so great as on some former occasions, but the committee takes great pleasure in confirming the opinion expressed by the judges, that the quality was fully maintained, and that the young stock particularly, gives promise of continuous improvement. Of swine, there was about the usual number; consisting of Berkshire, native, and crossed breeds, which were very uniformly good. We have generally been indebted to our neighbours of Delaware and Chester, in a great measure, for the display of sheep; but on the present occasion we have to regret that their fine flocks were absent, doubtless owing to the dry, dusty weather, and the interference of the general election.

The committee was gratified to perceive an increase of horses brought forward, and many of them very superior of their kind;—the citizens of Pennsylvania are obviously giving more attention to the blood, and are introducing a race very superior to the heavy and cumbrous horse of former days. The committee particularly recommends that the Society provide suitable stabling for horses brought to their exhibitions. The want of such accommodation is a serious inconvenience to the owners of these noblest of animals.

The depression occasioned by adverse times, entirely prevents that remuneration which those who raise fine stock deserve, and have a right to anticipate; yet we entertain the hope, that our agricultural community will eventually appreciate the advantage of breeding from good animals of every species, rather than the scrubby and thriftless quadrupeds with which the fine fields of Pennsylvania are occasionally deformed.

With the farmers of the interior or remote sections of country, where land is cheap, the raising and feeding of cattle and other stock, have been pursued to greater comparative advantage, than near large cities. The abundance and cheapness of improved blood within our borders, should not therefore be overlooked by them.

The Committee of Arrangement is thoroughly convinced that this Society, like those of the Eastern States and England, might make a moderate charge for admittance to their grounds,—the receipt of which, would enable them to grant many facilities to visitors, and hold out still further inducements for farmers to exhibit their valuable stock and produce.

On the day succeeding the display of stock and farming implements, the excellence of ploughs and skill of ploughmen were tested, under the eye of an able and faithful committee of judges. Although, as they state, the ground was dry and unfavourable, the interest was great and the result entirely successful. We are satisfied, that to try the general qualities and comparative advantages of different ploughs, a whole day is requisite; and to ensure the same success on future occasions, recommend the observance of this precedent.

The Committee of Arrangement does not deem it necessary to enter more minutely into the description of stock, implements of husbandry, &c., as they are sufficiently particularized in the accompanying reports of the judges.

Kenderton Smith, *Chairman.*

Algernon S. Roberts, *Secretary.*

Philadelphia, Oct. 23d, 1842.

Premiums awarded by the Philadelphia Agricultural Society, at its late Exhibition.

For the best thorough bred stud horse, to Dr. C. Irvine's horse "Grouse," the first premium of $12.

For the best stud horse adapted to the field or road, to Mr. William Robinson's horse "General Washington," the first premium of $10.

For the next best stud horse adapted to the field or road, to Mr. Cottman's horse "American Perry, Jr.," the second premium of $5.

For the best thorough bred mare, to Mr. Hubbard's mare "Lady Granville," the first premium of $10.

For the next best thorough bred mare, to Mr. S. W. Woodhouse's mare "Allina," the second premium of $5.

For the best horse colt, between 2 and 4 years old, to Mr. Cardwell's "Tippecanoe," the second premium of $8.

For the next best horse colt, between 2 and 4 years old, to Mr. Cornelius Smith's "Harrison," the second premium of $4.

For the best filley between 2 and 4 years old, by Mr. W. L. Green's "Grand Duchess," the first premium of $8.

For the next best filley between 2 and 4 years old, to Mr. Cornelius Smith's iron-grey filley, the second premium of $4.

The special premium of twenty dollars, for such animals as have received the first premiums of this, or any other Agricultural Society, is awarded to Mr. Barber's horse "Bay Bellfounder."

The Committee regret that Mr. Barber's 3 year old colt "Stanley Eclipse," was absent from the ground at the time of the examination. They have since examined the horse, and think him worthy their especial notice and commendation.

Where premiums offered by the Society have not been awarded by the Committee, there were either no horses offered for competition, or none in the opinion of the Committee, entitled to the premiums.

For the best Durham bull, over 3 years old, they award to James Gowen the premium of $12, for Leander, from Dairy Maid.

For the next best Durham bull, to Manuel Eyre, Jr., for his bull Marmion, $6.

For the best bull between 2 and 3 years old, to George Martin, for his bull Tarby, the premium of $10.

For the second-best, to Dennis Kelly, for Comet, $3.

AYRSHIRE BULLS.

For the best Ayrshire bull, to John Struthers, for Wallace, the premium of $8.

ALDERNEY BULLS.

For the best Alderney bull, to C. S. Smith, for Adrian, the preminm of $8.

For the second-best, to Mr. Suplee, for his bull Stephen Girard, $8.

BULLS OF OTHER IMPROVED BREEDS.

For the best, to Isaac W. Roberts, for his bull Montgomery, the premium of $8.

For the second-best, to F. Helmbold, for his bull Marmion, the premium of $4.

For the best Durham cow, over 4 years, to Dr. George Uhler, for Merion, $10.

For the next best, to Colonel R. Smith, for Bright, $5.

For the best Durham cow, between 2 and 4 years, to James Gowen, for Cleopatra, the premium of $10.

For the second-best, to Dr. George Uhler, for Camilla, $5.

For the best heifer, between 2 and 3 years, that has not produced a calf, to James Gowen, for Darby Kate, the premium of $6.

For the next best, to Mrs. Roach, for Kate, the premium of $3.

DEVON COWS.

For the best Devon cow, to Judge Longstreth, for Fancy, $8.

For the second-best, to C. S. Smith, for his cow.

AYRSHIRE COWS.

For the best Ayrshire cow, to N. Biddle, for his cow, Helen Mar, $8.

ALDERNEY COWS.

For the best Alderney cow, to G. H. Thompson, for Emily, an imported cow, $8.

For the second-best, to N. Biddle, for his imported cow, Flora McIvor, $4.

For the best mixed blood, to James Gowen, for Kitty Clover, $6.

For the second-best, to Samuel Cooper, for his cow Duchess, $3.

For the yoke of working oxen, to Henry Dull, $10 for his very fine oxen.

For the best ox or steer, to Isaac W. Roberts, for his red pied steer, of Durham blood, $10.

SPECIAL PREMIUM.

For such animals as have received the first premium of this or any other Society.

For the best cow of any breed, they award the premium of $20 to James Gowen, for his celebrated cow Dairy Maid.

Many fine cattle were offered and exhibited, in addition to those that have received premiums, and came, in some cases, in very close competition with those to which premiums were awarded. Several fine animals were excluded in consequence of having been honoured with premiums heretofore, and could only contend for the special premiums.

The Committee being thoroughly convinced of the usefulness of our exhibitions, would urge the owners of cattle to bring them forward on such occasions.

The Committee, after careful examination of these noble animals, Prince of Wales and Colostra, were unanimous in awarding the premium to Dennis Kelly's Prince of Wales.

CATTLE UNDER TWO YEARS OLD.

To Isaac Newton, of Springfield, Delaware county, for the best Durham bull, between one and two years old, Rodney, $8.

To Kenderton Smith, for the next best Durham bull, between one and two years old, Diego, $4.

To Robert T. Potts, for the best Devonshire bull, between one and two years old, Minion. Jr., $6.

To Nicholas Biddle, for the best Alderney bull, $6.

To Isaac W. Roberts, for the best Durham bull, between four months and one year old, Washington, $6.

To Morris Longstreth, for the best Devonshire bull, between four months and one year old, Johnston, $4.

To do. for the second-best Devonshire bull, between four months and one year old, Jackson, $2.

To Cornelius S. Smith, for the best Durham heifer, between one and two years old, Rowena, $6.

To Isaac W. Roberts, for the next best Durham heifer, Blossom, $3.

To James Gowen, for the next best Durham heifer, between four months and one year old, Miss Modle, $4.

To Dennis Kelly, for the next best Durham heifer, Calisto, $2.

To Samuel Cooper, for the best improved breed, Fair Helen, $4.

To James Gowen, for the next best improved breed, Maid of the Mill, $2.

To Henry Newman, for the best common stock, between one and two years old, Fanny Elssler, $4.

The Committee feel it their duty to add, that the young cattle which came under their notice, though not numerous, were of fine quality, and evinced great care in the selection of stock by their breeders. Besides those to which premiums were awarded, a

number of excellent and beautiful animals were exhibited, and in several cases vied closely with their more fortunate competitors. The Committee regret that there were not more calves under one year old, to compete with those to which the premiums were awarded.

To H. Hill, for the best Berkshire boar, $4.
To Wm. Exley, for the best Berkshire sow, $4.
To James Gowen, for the best boar, mixed breed, $4.
To do. for the best sow, mixed breed, and six pigs, $4.

The Committee regret the small display of sheep, there being none which would come within the scope of the premium list, although there was a fine flock exhibited by Isaac Newton, of Delaware county, of the Irish and Southdown stock, of very fine quality. The Committee are well aware, that for sheep, the district within the reach of Philadelphia, can compare with any portion of our country.

The Committee on Agricultural implements, respectfully report:—that the array in this department is numerous, and possesses much interest from variety, although comparatively few articles are of so recent invention, as to be now exhibited for the first time. Of that most important implement, the plough, all the specimens appear to have considerable merit, so far as a judgment may be derived from mere inspection, without actual trial in the field. As such trial is to be made under the supervision of a distinct Committee of judges, this Committee would waive the expression of any opinion on the respective merits of the ploughs, did not the premium list of the Society seem to require a decision from them, prior to, and independent of, the experimental proof. They accordingly award:

To Mr. Dickson, of Chesnut Hill, the premium of $5 for the best plough.
To Mr. Charles Garrett, of Lower Dublin, the premium of $2 for the second-best plough.

A double mould, or hill side plough, invented by Mr. B. Moore, is ingeniously adapted to its intended object, and is recommended to the Society as a proper subject of the premium for new implements.

They further award:

To Landreth and Munns, the premium of $4, for the best straw cutter—being the one invented by Mr. Botts, of Richmond, Va., which is easy and efficient in its operation, and so constructed as to be easily adjusted and kept in repair.
To Mr. D. O. Prouty, the premium of $8, for the best display of implements, comprising almost every tool used by the farmer or gardener.
To Landreth & Munns, the premium of $4, for the second-best display of implements, embracing a great variety of useful machines.
Your Committee would also notice with commendation, the display of implements by Mr. E. Chandler.
The Buckeye plough, with iron beam, exhibited by Mr. E. E. Sprigg.
The furnace and boilers, invented by Mr. James Pedder.
The corn and cob mill, by Mr. V. Birely.
The display of agricultural products is not deemed sufficiently extensive to warrant the award of a premium, but favourable notice is justly due to Mr. John Turner, for some very good samples of Indian corn, mangel wurtzel, Valparaiso squashes, potatoes, beets, &c.
To Mr. A. Clement, for samples of mangel wurtzel, broccoli, cabbage, beets, &c.
To Mr. James Robinson, for some very fine stalks of celery, raised by him in the garden of James Thornton, Esq.
To Mr. John Ramsay, for an excellent sample of potatoes, raised from the seed, and therefore supposed to constitute a distinct variety.
To Mr. S. S. Ritchie, for specimens of corn, potatoes, turnips, beans, &c. Mr. Ritchie also exhibits several very large Malay capons, which are commended to the notice of the judges of live stock.

In conclusion, the Committee congratulate the Society on the evidence of a continued interest in their useful labours, evinced both by the success of the display in this department, and the notice it elicits from the great concourse of visitors.

And they cannot but believe, that those whose genius has prompted them to invent, and those whose pursuits require them to use the various implements exhibited, will equally derive advantage from the intercourse which these periodical exhibitions are designed to promote.

After the above premiums were awarded, the President, N. Biddle, proceeded to deliver the Annual Address to a large and attentive audience. We give it below:

The Agricultural Society of Philadelphia, have requested me to welcome you to this their annual exhibition. With their own private contributions, aided by the wise liberality of the legislature, they are able to offer rich premiums, and to excite so generous a competition among farmers, as to produce the collection which you are assembled to witness; embracing the choicest specimens of animals, some of the richest productions of vegetable nature, the most improved implements of husbandry;—and we hope to show you a contest for superiority in that noblest of all instruments of labour, the plough.

On all this the Society looks with great satisfaction; for having endeavoured, during nearly sixty years, to introduce and diffuse every improvement in the science and the process of husbandry, they rejoice in witnessing the extraordinary progress which Pennsylvania has made during that period, in every branch of farming. In no department is that advance more conspicuous, than in the introduction of those breeds of cattle, of which the present exhibition furnishes some examples. I think we have now reached a point where the introduction from Europe, of animals, is no longer necessary to the perfection of our present stock, and that we may safely rely on what we possess, since the very best breeds are already numerous and moderate in price.

Take, for example, the cows. There is no breed of any celebrity in Europe that are not attainable here. There is the short horned Durham, that race created as it were, by refined and judicious crossing, adapted alike for the dairy and the market;

the Devons, probably the first domestic animals imported into New England, and who, at the distance of two centuries, retain the characteristics of the parent stock, with whom its relationship is renewed by late and numerous importations, fast walkers and stout workers too. The Ayrshire, a small round bodied, and compact race, easily kept, and claiming to be adapted alike to the knife and the pail. The Alderneys, a rawboned, ungainly race, not easy to fatten, since all its food goes to swell its copious and very rich supply of milk.

As to horses, our pursuits as farmers bring us less in contact with the highest bred races of this noble animal. Yet I am satisfied that the horse is destined to have the full developement of his qualities in no country more than this.

He comes originally from a dry, warm climate, and a clear sky. He finds them here, but they are wanting in the moist atmosphere and clouded skies and rich pastures of England; and accordingly the highest bred English horses require to be recruited by foreign blood; and already, by the stop watch, they are outstripped by their descendants here.

We possess sheep of various kinds, and in great abundance. Strange examples of the caprice of popularity. When the Spanish troubles first drove the merinoes into this country, they were high priced and high fed, as if each had a golden fleece; but they could make no progress, till at last they lost all imaginary value, became objects of dislike and even disgust, and now they are universal. We have plenty of Merinoes, and our present want is of the long wooled Leicester breed, to cross with the Merino, for the purpose of manufactures. With regard to swine, the public favour seems to decide in favour of the Berkshire, Hampshire, Lincoln and similar stocks, the qualities of which have been naturalized in our own Chester county breed. And thus we wish you to go round the whole circle and see the variety and the beauty of these specimens, and then reflect how much more economical it would be to stock our farms with cattle superior in quality to what we commonly see. In animals, as in almost everything else, the best is, after all, the cheapest, and the difference in the first cost of a good and a bad animal, is soon made up by the superior productiveness, upon the same food, year after year. One of the great advantages which the Society promises itself by this exhibition is, to place within the reach of every farmer the means of obtaining, at a small cost, the most valuable animals.

Nor let us pass without notice this collection of roots, turnips, sugar beets, ruta baga, mangel wurtzel, which ought to enter very largely into our farming. It is strange how things so lowly acquire national importance. The best farming is that which will give the greatest mass of sustenance to animals—since the less land required for animals, the more can be given for the maintenance of human beings. That fine farming region, England, had reached the limit of its power of supporting animals—since it turned to the root culture, it more than doubled, or quadrupled its power—and now, odd as the mingling of such dissimilar notions may seem, it is scarcely an exaggeration to say, that England's power is based upon its iron, its coal and its turnips. Then, that beet, which the commercial jealousy of Napoleon endeavoured to raise to the dignity of the sugar cane, which at this moment, yields to France more than sixty millions of pounds of good sugar, and has now become so incorporated into the French agriculture, as to divide the government of France between the encouragement of the foreign sugar cane and the domestic sugar beet. To us the question is unimportant, since sugar is so cheap in this country, as to leave to us the sugar beet as an excellent food for our cattle.

Examine too, these ploughs. For some thousand years men have been using the plough, and its improvement has been the companion of his own refinement. At first, a mere sharpened stick, then, by degrees, strengthened, then ironed, then a heavy cumbrous engine, led on by four, six, ten horses; then the refinement of simplicity stripped it by degrees of these incumbrances, a horse, a pair of horses, were successively withdrawn, as the machine is rendered lighter, till at last we have now reached almost the perfection of that instrument in yonder specimens. The great purpose of the plough is to come as near as possible to the spade; not merely to open the sod, but to turn it over, to make what was on top last year take its place at the bottom this year, and rot, till it is wanted. There are ploughs here which perform *that* better than any ploughs in Europe, and there is one especial instrument which we ought to remark, the subsoil plough. Our ploughing is generally too shallow. We scratch the surface, and then extract it by frequent cropping; whereas, if we could get lower down and loosen the surface below, we should bring into play a fresh soil, and almost double the extent of available ground. Thus in light soils we get fresh food for the root crops, and on the clay soils we open the lower stratum, and

drain off the water which cannot now penetrate the stiff sod. This subsoil plough, of which specimens will be exhibited to you in actual operation, is, I think, one of the best improvements of the last few years, and as among our farmers temperate habits are universal, I hope that instead of deep drinking, they will take to deep ploughing.

And now, let me say a few words on the general subjects of farming—they shall be mere hints on which I wish you to reflect when we separate, and perhaps you may turn them to some advantage.

In this section of our State, our gardening is better than our farming. No one can see without satisfaction the great improvement in our gardens, which furnish such an abundance of excellent and cheap fruits and vegetables, and flowers. Let us see if we cannot borrow something from that younger sister of farming. Now, what is the secret of successful horticulture? Is it not the thorough cultivation of a small piece of ground, which, well manured, well worked, throws out its treasures with the most prodigal profusion. What would a gardener do with fifty acres? He would concentrate all his force upon ten acres, and sell the rest. Well, is not the same law applicable to farming? and that brings us to the point that all our farms are too large, that is, they are beyond the means of the farmers to cultivate them well. If our farmers want to make money, they had better sell half their land, and employ the proceeds in enriching the other half.

In Pennsylvania there is a great deal of money invested in farms—but very little money employed in farming; this is a capital error which runs through our whole system, though a very natural mistake, where land is really cheap and labour nominally dear. The labour is the same as if a merchant were to spend all his money in buying a large store, and then have nothing to carry on his business; for, after all, land is only a place where farming may be carried on, as a warehouse is a place where merchandize may be sold—but fields are not crops, just as shelves are not goods, it is what we put in them or put on them, that gives profit. If the land be left to itself, it will run to waste in a few years, just as idleness in the human race is sure to degenerate into vice. Both can be kept useful and healthy, only by constant action. We sometimes rely on nature, whom we call a bountiful nurse, but the nurse herself must be fed before she can give nourishment to her children. No farmer, therefore, should have more land than he has the means of cultivating well, and if he does cultivate them well, they will be sure to yield an ample return. It is not land that gives profit, it is manure—it is lime—it is marl—it is the sweeping of stables—it is the scraping of ditches mellowed by lime; these, humble though they seem, are the objects of profitable expenditure. You all remember the cock in the fable, who found a jewel in a dung-hill, and did not know its value; rely upon it, that in the very centre of every large heap of manure, there lies a hidden jewel which a farmer can always find, and convert into gold.

The mention of the barn yard, reminds me of a circumstance of some interest to farmers, from its presumed connection with the health and comfort of their country life. In many parts of the country autumnal fevers prevail, and in the effort to explain what in the present state of our knowledge is inexplicable, it has been asserted that these fevers are caused by exhalations from decaying vegetables; and accordingly the latest immutable truth in medicine is, that the decomposition of vegetable matter is the cause of country fevers. If this be so, we ought all to hasten home and clear out our barn yards.

On every farm in this country, a spot is selected, called a barn yard, into which the farmer hauls all the leaves and weeds, and vegetables he can scrape together—to these he adds all the decaying straw and litter of his stables; he puts all this mass into the sunshine, and from time to time, he turns up the whole heap, in order that every part of it may be well rotted. All his people work in it, all his family inhale its atmosphere, and they ought, according to the received theory, to die under these pestilential exhalations. Yet they not only live, but thrive, and it probably never entered into the fancy of any human being, that he was made sick by working in a barn yard. Now if this very laboratory of decomposition of vegetables is a healthy spot, what influence can we ascribe to the same cause in forests of hundreds of miles in extent, where the leaves remain for years in the shade, without any decay at all. Let us hope that our medical friends may adopt some new theory, that may leave us to work in our barn yards without the dread of pestilence.

And as you may use it healthfully, use it freely. Never let any thing grow in your fields but what you put there, and what you put there make it grow richly. For instance, as you came here this morning, you passed many fields of Indian corn—but after all, you saw more weeds than corn, and weeds going to seed, and exhausting the ground more than the corn itself. Now if

we will not keep the weeds out by ploughing, we ought, at least, to give the corn a larger share of the field, so as to have twice the quantity of corn, and only half the quantity of weeds.

But the most serious grievance in our farming, and one to which I ask your special attention, is our very bad system of fencing. When the country was first settled, it was natural in felling the timber, to enclose with the logs, the clearing, just as in New England, the stones on a farm may be as well formed into a fence, as carried further. But as wood became scarcer, the expense has increased, till now it has become a real oppression. I have heard of a farm surrounded by a cedar fence, which would actually sell at auction for more than the farm itself. A most respectable member of our Society has assured me that the fencing of his farm, of perhaps 300 acres, cost him 5,000 dollars. The extent of this burthen in Pennsylvania, will surprise you all, as it astonished me when I came to make this calculation, which is of course very rough, but as I give the elements of it, you may rectify its errors.

The whole surface of Pennsylvania is said to be 28,000,000 of acres. Deduct for unenclosed lands, what seems to be a large allowance, say 18,000,000, and there remain enclosed in a post and rail fence, 10,000,000.

The size of the lots into which they are sub-divided, varies; near large cities and towns, the lots are of a very few acres—in remoter places they are larger; but for convenience, I have assumed as a basis of calculation, that the sub-divisions of a Pennsylvania farm are on an average, about 10 acres.

Now, to enclose a field of 10 acres, you have on each side 660 feet, and calling a panel 10 feet, you have 66 panels on each side, or 264 panels to go round the whole—but as every panel serves for an enclosure on each side, the number of panels should be reduced of course to one half; so that, upon a large scale of enclosure, every 10 acres require 132 panels of fence. Now 10,000,000 of acres, thus divided into fields of 10 acres, amount to 1,000,000 fields, each of which requiring 132 panels, the whole *amount* of panels is 132,000,000. The price of a panel varies in different parts of the State. Here it would cost one dollar a panel. But taking the average price at eighty cents a panel, we have $105,600,000, or in round numbers, $100,000,000.

Consider now the interest on this outlay, the wear and tear of the fence, and that the whole of it will not last more than 10 or 15 years, and you have as the annual tax upon agriculture in Pennsylvania, a sum of 10,000,000 of dollars. If this estimate appears still too high, reduce it one half, and you have still a tax of $5,000,000.

Look at it in another point of view. See how many post roads, private roads and lanes there are, with a row of fences on each side—see how every farm is cut up into little divisions of a few acres—and the result will not vary much from what I have stated. They say that every man's house is his castle—one would think every man's farm was his fortification, so cut up is it with these piles of logs, like so many entrenchments. Indeed the best use of a fence that I know, is that at the battle of Bunker's Hill; the farmer warriors brought two fences together, and filled the interval with new hay, as an impromptu rampart. But in times of peace they are absolute nuisances.

For what is the use of all this fencing? In my judgment it is of no service at all. We might get rid of the whole expense of it. We are so accustomed to be shut up in those wooden pens, that we can scarcely understand how we are to do without them. But we can surely do without these fences just as all the rest of the world does.

I remember a friend of mine from the South telling me, that until he left home, he believed to have the fever and ague, was a necessary infirmity of human existence, to which every body was subject from his birth. So among some nations a personal deformity becomes first general and then fashionable, till every man is supposed to be an ugly fellow unless he has a goitre or a humpback, and we think that all the rest of the world must have wooden fences. Thus a gentleman of Pennsylvania once told me, that on his return from Europe he was conversing about his travels with an old German friend, whose ideas of luxury were confined to what he had long enjoyed under the old fashioned porch, or stoop, and he said to him,—"Well, I suppose the king of England must have a most beautiful stoop."

Go over all the continent of Europe, take Portugal and Spain, and France, and Italy, and Germany, there are no such things as these fences. The lands are divided by stone marks, or other indications of boundary, which are just as sacred as a post and rail fence. The cattle are generally kept up in barns and other places, where their manures are husbanded, instead of being wasted, as they are by roaming over fields. If they are occasionally put out in fields, they are tethered, or watched by boys or dogs, so as not to intrude on their neighbours. Why cannot we adopt the same system? The difficulty seems to be the road cattle. Everywhere else people go on the

principle that no one's cattle have a right to intrude on his neighbour's land. Here we seem to think that it is not the owner's business to keep his cattle in, but the neighbour's business to keep them out. Accordingly all the highways and lanes are infested by cattle turned out to graze on the public roads, which were made for travelling, not for pasturage—a set of land pirates, who go prying about for any weak place in some fence, and not only invite themselves in, but generously introduce all their associates. The necessity of keeping out a bad cow, thus subjects the neighbours to an expense equal to a thousand cows.

What is of vital importance, too—scarcely a day passes without our hearing of serious accidents on our rail-roads, caused by cattle. The law is, I believe, quite sufficient to protect enclosed lands, if the farmers will only see that it is executed; and if the State will protect our citizens when travelling on its rail-roads, by prohibiting this roaming about of cattle, I have no doubt that millions might be saved to the farmers, and all these rickety, misshapen sticks of dead timber disappear, regretted only by the politicians, who would lose that finest attitude for calculation—sitting on the fence.

Having spoken of the improvement of our farms, let us not omit a much more important subject—the improvement of our farmers. In the stirring competition of all classes around them—in the increased diffusion of knowledge, and the general activity of mind which now pervades all society, the farmers must maintain their standing by the same means. Unless they cultivate their minds—unless in the intervals of their labours they pursue the studies which qualify men for public usefulness, they will be distanced in the race of honourable ambition, and lose that high place in the public estimation and the public councils, to which they have a right to aspire. And certainly, never was the advantage of their position more conspicuous than at the present hour. In the general desolation which has swept over the country, the only interest which has not been visited by the sternest reverses, is that of agriculture. Undoubtedly, the people who have suffered least, are the farmers, whose deep roots in the soil have enabled them to withstand the tempest.

The same gentle vicissitudes of the seasons have passed over them—the same abundance has blessed their harvests—and their industry has been rewarded by gains scarcely less in name, and really greater than before. If they have not enjoyed the feverish excitements, or the luxurious amusements of the dwellers on pavements—they have been spared many an anxious thought and many a heart-ache, not heard, but not the less felt in the din of cities—let these things reconcile farmers to their station; let them enjoy in peace the repose, the abundance, the thoughtfulness, the sobriety of their own healthy existence, without wasting an anxious thought on their more active and ostentatious, but not more happy brethren—for we may now repeat with even more truth than the Poet Farmer of antiquity did nearly two thousand years ago:—"Happy—too happy farmers—if they only knew their own blessings."

To Cook Cucumbers.—The Editor of the American Farmer furnishes the following receipt, which he says gives one of the most "palatable vegetable dishes, with which the table can be garnished." Pare off the rind, then cut the cucumber into slices *lengthwise*, dust either side of those slices with corn meal or wheat flour, pepper and salt them to please your taste; this done, fry them brown, and you will have one of the most delicious dishes that you can imagine, combining in their flavour those of the oyster-plant and egg-plant. Of their healthfulness, thus cooked, there can be no question, and of their palatableness, it is only necessary that you *try them*, to say with us that they are exquisite.

A Late number of the Quarterly Journal of Agriculture contains some interesting experiments in manuring potatoes, carried on by Mr. Fleming, of Barouchan. The weight of produce of 18 yards of potatoe drill, to which farmyard manure was applied in the usual manner in each case, was as follows, according to the mode of top dressing:—1st. No top dressing, 77 pounds; 2d. Sulphate of Soda, 86 pounds; 3d. Nitrate of Soda, 93 pounds; 4th. Sulphate and Nitrate of Soda, mixed, in equal quantities, 124 pounds.—The quantity of Sulphate and Nitrate used altogether by Mr. Fleming was 150 pounds, costing 21s. 6d, the return for which was upwards of 8 tons of potatoes.

The "Cultivator" says that Claudius Allen, Esq., of Cheshire, Connecticut, last year sheared from one sheep, one year old, 14 pounds, and from three sheep of the same age, 33½ pounds of wool. This year, from eleven ewes and one buck, he cut 88 pounds: we are not told of what breed they were. It is also said, that J. L. Dean, of Union Springs, N. Y., has a Leicester lamb, which at eight weeks old, weighed 75 pounds, and at twelve weeks, 93 pounds.

THE FARMERS' CABINET, AND AMERICAN HERD-BOOK.

PHILADELPHIA, ELEVENTH MONTH, 1842.

THE season for reading, among our agricultural friends, is now here. Well do we recollect the days of our boyhood, when the long winter evenings were anticipated with no small degree of satisfaction. They were looked to, as the period, when, without postponing out door duties, an indulgence in a love for books, could be luxuriated in, to our heart's content.

The season of spring is a delightful one to the farmer. There is the bursting forth, almost of a new nature, around him. Bird and beast, and flower, give manifestation of newly awakened impulses. The first starting of the plough, and the smell of the fresh earth, throw elasticity into the step, and fill the bosom with hope. The summer too, with its flowing pastures,—its new made hay,—its waving grain, and its thunderings and lightnings, yields its full share of enjoyment. And autumn, from whose falling leaf we may read so deep a moral,—the period for garnering the crops, and consummating the hopes of the season, with the ever-varying beauties of our native forests, which it has been said, no pencil has yet been able to paint, will not yield in the amount of its calm and substantial pleasures, even to the exhilarating influences of spring. Winter, with its storms, its leisure, and its long evenings, opens to the farmer opportunities for improvement, which, when properly appreciated, are productive of important results. Books, whether to enlighten him with particular reference to his calling, or on those subjects of more general inquiry that present themselves to an intelligent mind, are now so cheap and easy of access, that we have sometimes been induced to conclude that the husbandman, in the quiet seclusion of his fireside, had privileges which the citizen might almost envy. On looking, a few days ago, over the counter of KIMBER & SHARPLESS, under our own roof, attention was arrested by the handsome variety of books, particularly adapted to the wants of our agricultural readers. Among them we noticed Downing's Landscape Gardening, and Rural Architecture—his Cottage Residences,—and the Theory of Horticulture, by Professor Lindley, editor of the London Gardeners' Chronicle. The first two are American works, and the latter, having been edited by A. J. Downing and A. Gray, is also adapted to this country. These three works, while they contain a great deal to interest and instruct the intelligent farmer, are yet more particularly calculated to meet the wants of the man of full means. The wholesome principle is inculcated throughout, that true taste is an excellent economist, delighting to produce great effects from small means. Loudon's Encyclopedia of Plants, and that of Gardening,—two splendid works, lately imported, were also among the number. The American Farmers' Instructor, by F. S. Wiggins, the originator of the Farmers' Cabinet—Dr. Darlington's Flora Cestrica, containing an enumeration and description of the plants of Chester county—Liebig and Johnson's late celebrated works on Agricultural and Animal Chemistry—Mason's Farrier—Boswell's little work on Bees, Pigeons, Rabbits, and the Canary bird, as well as his Poultry Yard, both particularly adapted to interest our juvenile farmers, helped to swell the list.

While glancing over these volumes and many others on the counter, which our space will not allow us to name, the thoughts were carried back in a twinkling, to days long past, when hopes were indulged and privileges enjoyed, which made life delightful. The farm yard—the books, and the long evenings of that period, have brought up "sunny recollections," and we ask our readers to excuse us for having almost involuntarily given them expression.

"THE PRINCIPLES OF CHEMISTRY, *prepared for the use of Schools, Academies and Colleges, by Daniel B. Smith.*"

This work has just been published by Uriah Hunt, and is for sale at his store, 101 Market street, and also at this office. Perhaps it would be sufficient to have made the above simple announcement. Yet, inasmuch as the attention of the farmer is now so frequently called to the composition of the soils he cultivates, and the food upon which his plants thrive, it has become apparently more necessary than formerly, that he should look a little more closely into the chemical nature of the substances with which his business is continually bringing him in contact. Although, as its title imports, this book has been prepared more particularly for the professed student; yet, from the nature of the subject, and the able manner in which it has been treated, we find much to interest the general reader. The style, as those who know the writer, would anticipate, is as Dr. Mitchell has observed of it; "chaste, perspicuous, and concise." The arrangement appears to us judicious, and the investigations and conclusions show the writer to be *at home* in his laboratory.

The new Chemical Nomenclature, as framed and introduced by the illustrious Lavoisier and his coadjutors, sixty years ago, has always claimed our admiration, as the most beautiful example of an approach to a universal and strictly "philosophical language which has ever been presented to the world." The language of algebra, it is true, is general, so far as it can be applied; but it has reference to quantities only, not to things—to ratios, not to the constituents of bodies. This language of Chemistry, has often reminded us of that alphabet of human thoughts—that universal, philosophical language, which Leibnitz and some others have dreamed of, as being likely, one day, to prove a powerful agent to assist the reason, the invention, and the memory.

IN another column will be found a list of the premiums awarded by our Agricultural Society, as well as the address delivered on the occasion, by its President. This is well worthy an attentive perusal. The sound principle is forcibly inculcated, that in animal stock, the best is the cheapest, and that the concentration of the farmer's means upon a comparatively small number of acres, is greatly preferable to their dissipation over broadly extended fields. We would particularly invite attention to the remark, in which there is doubtless too much truth, that in our country there is a great deal of money invested in *farms*, and but very little in *farming*. We are too apt to forget—indeed, it would seem as if we had never yet

learned "that it is not *land* which gives profit,—it is manure—it is lime—it is marl." The calculations in relation to fencing in Pennsylvania—and they would apply equally to New Jersey—even after reducing them one half, throw open items of expenditure in the shape of interest and natural decay, that are really startling. We have even heard it said, that the stone fences of Rhode Island, have cost more than the whole island would sell for. Yet here, with our abundance of timber, it will be long ere our farmers will begin to think of the "tethering," or the "watching" that is widely practised on the Continent.

We feel unwilling to close this brief notice without saying we have read the last paragraph but one, with particular interest. It is unquestionable, that "in the stirring competition of all classes around him—in the increased diffusion of knowledge and the general activity of mind, which now pervades all society, the farmer can only maintain his standing, by an attention to the same means," which others are so successfully laying hold of. He must cultivate and enrich his mind with reference to his business, as well as his fields, and never lose sight of the truth, either in relation to himself, or his children, that in agriculture, no less than in mechanics, "knowledge is power."

The Address of James M. Garnett, Esq., before the Newcastle Agricultural Society, at its late exhibition, has been neatly printed in pamphlet form, and affords another instance of the wholesome truths that may be conveyed on occasions of this kind. While the farmer, who would succeed in his vocation, must be open to conviction and ready to give fair and accurate trial to experiments, which hold out rational promises of success, he is cautioned not to hazard more labour or money in making them, than a sound discretion will justify. A hint is thrown out to Agricultural Societies, that in offering premiums, they be regulated by the principle of encouraging nothing that has a tendency to render tillage and pasturage more showy than useful—more costly than profitable. To obtain the greatest and most beneficial results, at the least cost of time, labour and money, the speaker suggested, should be the object of all agricultural premiums. Early rising—proper employment of time—the vigilant eye and active foot of the master, are enumerated as among the most effective means for the improvement of his farm. Woman, too, as well she might be, was remembered by our veteran orator. Our wives and our daughters were reminded, that their most estimable adornment, was a knowledge and love of their duties; and that their most honourable occupation is in making that home happy, in which it is their high privilege to move, as the "ministering angel."

It is announced in a late number of the New Genesee Farmer, that its proprietorship will at the end of the year, pass from the hands of our friend, M. B. Bateham, into those of Henry Colman, the present editor. This has been one of our most ably conducted agricultural papers. We are pleased to find its price is to be raised from fifty cents to one dollar, and hope, that with this reasonable addition, its publication at the end of another year, may not prove "a serious loss." As the editor remarks, no righteous master would require him to "work for nothing, and find himself." We much regret to learn that one of the causes for the retiring of the present proprietor, is *ill health*.

The editor of the Farmers' Register certainly deals with a liberal hand with his friends. He will please accept thanks for the package received by the "Leo." Its contents have been distributed as directed.

In the Register of the Ninth month, will be found a detailed account of the editor's recent examination of some of the marl beds in Gloucester and Salem counties, N. J. Copious extracts from it, will appear in our next number. They have been crowded out of this by local matter, connected with our Agricultural Society.

The late Annual Fair, Cattle Show and ploughing match of The New Haven County Agricultural and Horticultural Societies, appears from the Farmers' Gazette, to have been a very spirited affair. The working oxen exhibited, were driven into the city in teams, numbering from 20 to 132 pairs. There were 513 pairs on the ground. The towns of Orange and Hamden, furnished respectively, trains of 120 and 132 pairs, all in fine working order. A couple of twins, five years old, owned by John Todd, of North Haven, were so remarkable for their size, form, colour, discipline, power, and similarity of appearance, that the whole world is challenged to produce their equal. Professor Silliman is the President of the Agricultural—and Dr. Monson of the Horticultural Society. Professor Olmsted was the orator of the day.

Since the communication on page 124, in relation to lamps for burning lard, was in type, a couple—a glass and a tin one adapted to the purpose, and patented by Southworth, have been left at the office. We have for several evenings used one of these lamps, and it certainly operates well, yielding a fine clear light. A somewhat broader base to the bottom of the tin one, would be an improvement. As to the cost, compared with oil, we have formed no opinion. We learn that they are for sale at Scattergood, Haverstick & Co's, No. 68 N. Third street.

Through the liberality of the publisher, S. S. Haskill, 150 Fulton street, New York, the first two numbers of "The Farm House of the nineteenth century, or Encyclopedia of Practical Agriculture," have been placed upon our table. We have found time only to glance hastily over them, and to mark the great variety of agricultural matter they contain. Moisture and drought, temperature, electricity, climate and soils, are among the prominent subjects treated of. The work is translated from the French, by Elizur Wright, Jr., and will be published semi-monthly, in forty Numbers, making four Volumes, at $10, or $7 if paid in advance. It will contain more than 2,000 engravings, and embrace a "Complete and methodical course of Rural Economy."

A few very fine ears of perfectly white corn, have been left at our office by Aaron Ballangee, of Bordentown, N. J., which, to the lovers of nice mush, will certainly appear inviting. He calls it the *Kentucky*

gourd seed. A few years ago he procured a small ear from that State, and by care in the selection of his seed, the produce is now fine and large, and beautiful to look at.

Large Veal.—New Jersey in the field again. The "Constitution" of Woodbury states, that Ephraim S. Coles, of Pilesgrove, Salem County, slaughtered on the 28th ult., a calf raised and fed by himself, which is probably unrivalled. The live weight was 674 pounds, and when *dressed*, 440 pounds;—58 pounds of fat were sold off the meat. The calf was three-eighths Durham, and was calved on the 13th of Third month last.

Judge Longstreth will please accept thanks for the interest manifested by a translation of the letter from Germany. It came too late for this number, as did also the communication of our friend, F. W. from Carlisle.

☞ Notices, which are essentially advertisements, are sometimes received, with a request that we would insert them. Although the Cabinet is not professedly an advertising paper, the proprietor would be willing to deviate a little from the plan which has heretofore been pursued, and insert to a very limited extent, short advertisements, the subject matter of which, may be in character with this paper. The terms will be one dollar for each insertion of ten lines or less, and so in proportion for each additional line. The money to be paid in advance. An advantageous medium will thus, we think, be opened for our agricultural friends to make their wants known, as well as to have them supplied.

We may perhaps, with propriety use this opportunity to acknowledge the punctuality of those of our subscribers who have paid their dues. We may also embrace it to say to others, that it would be particularly convenient to the operations of this office, if they would remember the facilities which the privileges and courtesies of the respective post-masters offer for the transmission of the small sums due us. The papers of some have been running on unsettled, for a couple of years and more. Will they, by attending to a small matter of duty on their part, enable us satisfactorily to perform some of ours.

A FARM WANTED.

A practical farmer with a small family, competent to take entire charge of a respectable farming establishment, where the interest of the employer will be the main object, wishes a situation. One where improvement is the order of the day, would be preferred. Location not particular. For further particulars, inquire at the office of the Cabinet.

The quantity of rain which fell during the Tenth month, (October,) 1842, was nearly one inch and three quarters. ..... 1.712 inches.

Pennsylvania Hospital, Eleventh mo. 1st, 1842.

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